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LETTER DATED 15 DECEMBER 1998 FROM THE PERMANENT REPRESENTATIVE OF THE SUDAN TO THE UNITED NATIONS ADDRESSED TO THE PRESIDENT OF THE SECURITY COUNCIL

Please find enclosed a study prepared by Michael Barletta, senior research associate at the Center for Non-Proliferation Studies at the Monterey Institute of International Studies, California, on the American allegations concerning Al-Shifa pharmaceutical factory destroyed by the United States of America on 20 August 1998 (see annex).

The study reached the following conclusions:

1. The evidence reviewed in the study suggests possible deficiencies in the collection, analysis and use of intelligence data leading to the attack on Al-Shifa.

2. There are doubts about the factory in part because of the haste and secrecy of the decision-making that led to the attack, and because United States officials had never identified the Sudan as a proliferator of chemical weapons.

3. The most important is that senior United States officials were shown to have been ignorant of key facts at the time of their decision to bomb the plant. United States political authorities and intelligence officials were not aware that:

(a) Al-Shifa was an important producer of pharmaceuticals in the Sudan and its products were widely available in Khartoum pharmacies;

(b) United States officials of the United Nations had approved Al-Shifa's proposed export of veterinary medicine to Iraq under the United Nations oil-for-food programme;

(c) Al-Shifa was not under heavy military guard but quite open to Sudanese and foreign visitors;

(d) The plant was not owned by the Government, but by a Saudi banking consultant with some ties to the Sudanese anti-Islamist opposition;

(e) EMPTA is not banned under the Chemical Weapons Convention and could have legitimate commercial applications; and, most importantly, and without following a reliable chemical weapon sampling and analysis protocol - which would be very difficult to implement through covert action - even a competent laboratory could reach a "false positive" test result in analysing a soil sample, owing to the presence of pesticide or insecticide residue.

The enclosed study is another proof refuting the allegations which lack precise information and are deceiving at the same time, propagated by the American administration to justify its unjust aggression against a pharmaceutical factory which produces only human and veterinary medicine.

I should be grateful if you could have the present letter and its annex circulated as a document of the Security Council.

(Signed) Elfatih ERWA
Permanent Representative

Annex

Chemical Weapons in the Sudan: Allegations and Evidence

by Michael Barletta [1]

Michael Barletta is a Senior Research Associate at the Center for Nonproliferation Studies, Monterey Institute of International Studies. He directed research and production of the Center's "Fact Sheet Series on WMD in the Middle East" and "Resources on the Missile Crisis over Cyprus," both published online (http://cns.miis.edu/). Barletta is a Ph.D. candidate in Political Science at the University of Wisconsin-Madison, and is completing a dissertation entitled "Ideas and Domestic Politics in International Security Cooperation: Emergence of an Argentine-Brazilian Nuclear Regime."

On August 20, 1998, U.S. Tomahawk cruise missiles struck and destroyed al-Shifa Pharmaceutical Factory in Khartoum, the capital of the Sudan. The United States said the attack was in response to the bombings two weeks earlier of U.S. embassies in Kenya and Tanzania which it believed were orchestrated by Osama bin Laden. U.S. official said the bombing of the Sudanese facility was necessary to prevent bi Laden from acquiring deadly nerve gas precursors that were being produced at Shifa. The Sudanese government denies that chemical weapons (CW) have ever been produced at Shifa or anywhere else in the country.

Since taking power in a bloodless coup in 1989, the National Islamic Front (NIF)-backed government of the Sudan has been a target of worldwide criticism and increasing U.S. opposition. In 1996, the United States withdrew all diplomatic personnel, and it has imposed economi sanctions against the country in part because the United States identifies the Sudan as a state sponsor of international terrorism. There

have also been allegations since 1989 that the NIF government has procured, developed, and used CW, and the Sudan is not a signatory of the Chemical Weapons Convention (CWC).[2]

Despite these general suspicions regarding the Sudan, however, few i any experts would have anticipated either the U.S. attack on Shifa or the specific allegations regarding production at that facility. Prior to August 20, 1998, no U.S. official had ever publicly identified the Suda as a confirmed CW proliferant or "country of concern." Moreover, all prior allegations about the Sudan that specified a particular CW agent had identified it as mustard gas, not VX. In addition, although a numbe of locations had been alleged to be involved in CW development or storage in the Sudan, the Shifa facility had never been identified as among them. Since the bombing of the plant, a number of questions have arisen regarding the U.S. charges, but the U.S. government continues to maintain that its decision was justified.

The attack on Shifa may be evaluated on a number of criteria that are beyond the scope of this study, including its efficacy as a counterterrorism measure; effectiveness as a counter-proliferation initiative; impact on U.S. relations with Arab, Muslim, and African state and peoples; congruence with international law; impact on Sudanese and American national politics; and health and humanitarian consequences. This report, however, concerns the possibility of CW acquisition by the Sudan. It examines allegations and evidence available in unclassified sources regarding the acquisition and development of CW in the country, focusing on the Shifa facility. Because some details of the U.S. rationale for the cruise missile strike and U.S. allegations regarding CW in the Sudan have evolved substantially since the attack, this study addresses both the initial rationale and subsequent modifications of the U.S. position. Although the official positions of the Sudan are noted below, the author presumes that its government is not a reliable source of information.[3] Hence every effort has been made to rely on sources that are independent or critical of the NIF regime. This study incorporates material published up to October 15, 1998.

This report concludes that it remains *possible* that at some point in time, a small quantity of a VX precursor chemical was produced or stored in Shifa or transported through or near it. However, the balance of available evidence indicates that the facility probably had no role whatsoever in CW development. Whether or not the United States wa mistaken in its view that Shifa was involved in CW production, unconfirmed allegations about other CW sites in the Sudan remain. To ascertain with confidence whether or not chemical weapons have bee produced in the country will require a thorough, independent, and technically qualified investigation of the remains of Shifa and other alleged CW facilities in the Sudan.

OPERATION INFINITE REACH

> *...I ordered our armed forces to strike at terrorist-related facilities in Afghanistan and Sudan because of the imminent*

threat they presented to our national security. (...) Our target was terror. Our mission was clear: to strike at the network of radical groups affiliated with and funded by Osama bin Ladin, perhaps the preeminent organizer and financier of international terrorism in the world today. [4]

U.S. President Bill Clinton, August 20, 1998

Immediately following the near-simultaneous August 7, 1998, bombing of the U.S. embassies in Nairobi, Kenya, and Dar es Salaam, Tanzania, President Bill Clinton convened a team led by National Security Advisor Samuel Berger to evaluate military options for retaliation.[5] In an initiative marked by extraordinary speed and secrecy, less than two weeks later the United States simultaneously attacked targets in Afghanistan and the Sudan in "Operation Infinite Reach."

The Counterterrorism Center of the U.S. Central Intelligence Agency (CIA) assembled evidence linking the two embassy bombings to Osama bin Laden, and linking the Shifa plant in the Sudan both to bin Laden and to CW development. The evidence was then reviewed by a very limited group of senior officials, who planned the retaliatory attacks in utmost secrecy.[6] This self-dubbed "Small Group" was limited to just six top officials: President Clinton, Secretary of State Madeleine Albright, National Security Advisor Berger, Secretary of Defense William S. Cohen, the Chairman of the Joint Chiefs General Henry H. Shelton, and CIA Director George J. Tenet.[7]

The "Small Group" gathered in the White House Situation Room on August 10. Clinton and other officials agreed with Shelton that operations using ground troops or manned aircraft should be ruled out and hence these senior officials agreed that the U.S. counterattack should employ Tomahawk cruise missiles.[8] Shelton presented a list possible targets in the Sudan, and the officials reportedly agreed that al-Shifa was the best among them.[9]

On August 14, CIA Director George Tenet reported that there was conclusive evidence justifying a retaliatory attack against bin Laden. Cohen and Shelton briefed Clinton on a general plan for attacks, and the President reportedly approved their plans that same day, including the strike on al-Shifa.[10] The four chiefs of staff of the armed forces, Attorney General Janet Reno, and Federal Bureau of Investigation (FBI) Director Louis J. Freeh were not informed of the plan until one day prior to the scheduled attack. When briefed, Reno reportedly urge delay to enable the FBI to compile more convincing evidence linking bin Laden both to the embassy bombings and to the facilities targeted for attack. Reno was apparently concerned that the available evidence was insufficient to meet standards of international law, but she was overruled. Neither the Defense Intelligence Agency nor the FBI was involved in evaluating the data that led U.S. officials to attack Shifa.[1

On August 20, 1998, two U.S. warships in the Red Sea launched a dozen or more Tomahawk cruise missiles that destroyed al-Shifa

Pharmaceutical Factory, located in an industrial area northeast of Khartoum.[12] Operation Infinite Reach also included attacks on alleged terrorist training camps in Afghanistan.[13] The missiles struck the Shifa factory at approximately 7:30 p.m. Khartoum time, killing one and injuring 10 Sudanese people in the vicinity.[14] The explosions an ensuing fire consumed the facility, with all but three sections "unrecognizably demolished," according to a reporter on site. The thre remaining sections—the administration section, water-cooling works, and plant laboratory—suffered severe damage.[15]

The day of the attack, top U.S. officials explained that their decision to bomb Shifa was based on their belief that it was involved in CW production. President Clinton said the plant was destroyed because it was "a chemical weapons-related facility."[16] National Security Advisor Berger said, "the so-called pharmaceutical plant is part of something in Sudan called the Military Industrial Complex...."[17] Adding more detail, Secretary of Defense Cohen said "the facility that was targeted in Khartoum produced the precursor chemicals that woul allow the production of a type of VX nerve agent."[18] Joint Chiefs Chairman Shelton said the U.S. "intelligence community is confident that this facility is involved in the production of chemical weapons agents including precursor chemicals for the deadly V series of nerve agents like, for example, VX."[19] An unidentified senior U.S. intelligence official said,

> we know that [alleged terrorist Osama] bin Ladin has made financial contributions to the Sudanese military industrial complex. That's a distinct entity of which we believe the Shifa pharmaceutical facility is part. We know with high confidence that Shifa produces a precursor that is unique to the production of VX. (...) We have no evidence, have seen no commercial products that are sold out of this facility. The facility also has a secured perimeter and it's patrolled by the Sudanese military. It's an unusual pharmaceutical facility.[20]

The U.S. Department of State released a concise official rationale for the bombing of Shifa:

> The facilities the U.S. attacked on August 20, 1998 were central to the bin Ladin network's ability to conduct acts of terror around the world. (...) ...the U.S. has reliable intelligence that the bin Ladin network has been actively seeking to acquire weapons of mass destruction--including chemical weapons--for use against United States interests. Therefore, the U.S. also attacked one facility in Sudan associated with chemical weapons and the bin Ladin network. This facility is located within a secured chemical plant in the northeast Khartoum area. U.S. intelligence over the past few months has indicated that the bin Ladin network has been actively seeking to acquire chemical weapons for use against United States interests. Bin Ladin has extensive ties to the Sudanese Government and its

> industrial sector. The U.S. is confident this Sudanese Government-controlled facility is involved in the production of chemical weapons agents.[21]

Almost immediately after the U.S. missile strike, press reports began raising questions about the U.S. depiction of al-Shifa. The next two sections of this report present evidence that some elements of the initial U.S. rationale, such as claims that Shifa was military-controlled and wholly dedicated to CW production, were incorrect. The report the examines the more elusive question of whether the site nonetheless may have had some connection to CW development.

MEDICINAL PRODUCTION OF AL-SHIFA PHARMACEUTICAL FACTORY

> *I have personal knowledge of the need for medicine in Sudan as I almost died while working out there. The loss of this factory is a tragedy for the rural communities who need these medicines.* [22]
>
> British engineer Thomas Carnaffin, August 1998

Al-Shifa Pharmaceutical Factory contained four main buildings: three production facilities and an administration building.[23] It was located i Khartoum's northern district, a mixed residential-industrial area.[24] Construction of al-Shifa was started in 1992 and completed in 1996 by Bashir Hassan Bashir, a Sudanese engineer, and Salem Baboud, a Saudi Arabian shipper.[25] The idea to construct the plant was reportedly that of Hassan, who had business experience importing medicines into the Sudan.[26] The plant was designed in part by retire U.S. pharmaceutical consultant Henry R. Jobe, and it incorporated components shipped from the United States, Sweden, Italy, Switzerland, Germany, India, and Thailand.[27] According to Sudanes officials and al-Shifa export manager Alamaddin Shibli, the factory wa partly financed by the Eastern and Southern African Preferential Trad Association. This institution was reported to be a "thoroughly respectable body" with no known connection to bin Laden or other terrorists.[28] Bashir has said that the factory had no connection to an Sudanese government "military industrial complex."[29] In March 1998 Bashir and Baboud sold the factory for approximately $32 million to Salaheldin Idris,[30] a Sudanese-born Saudi Arabian businessman.[31

Whether or not CW-related activities took place at Shifa, it is now clea that at least most of the facilities' operations involved production of commercial pharmaceuticals, a fact that senior U.S. decisionmakers were apparently unaware of when they targeted the site. Shifa was reportedly the largest of six pharmaceutical plants in Khartoum, employing over 300 workers and producing dozens of medicinal products.[32] Twelve of these were for veterinary use, including an ant parasitic that played an important role in sustaining Sudan's livestock production. Shifa's human medicines—including drugs for treating malaria, diabetes, hypertension, ulcers, rheumatism, gonorrhea, and tuberculosis—were widely available in Khartoum pharmacies.[33] The

factory supplied 50 to 60 percent of Sudan's pharmaceutical needs, as well as exporting products abroad.[34]

After the U.S. air strike, news reports from the site and interviews with plant officials, local doctors, and foreigners involved in the constructio and operation of the facility confirmed that it produced antibiotics, pain relievers, drugs for treating malaria and tuberculosis, and veterinary medicines.[35] NBC Chief Medical Correspondent Dr. Bob Arnot personally inspected the rubble of the Shifa plant two days after the attack. He examined the plant's hand-written plant logs, assembly line and associated machinery, and observed thousands of packages and bottles in the remains of the plant. Arnot concluded that while this evidence did not prove that the plant *only* produced medicines, it did demonstrate that the plant produced antibiotics and tuberculosis drugs on a large scale.[36]

Shifa's pharmaceutical production was known to at least one part of th U.S. government. U.S. officials at the United Nations had approved th sale of medicines produced by Shifa.[37] In January 1998, the factory won a $199,000 contract to ship 100,000 cartons of Shifazole veterinary medicine to Iraq, as part of the U.N. oil-for-food program. According to Shifa export manager Dr. Alamaddin Shibli, the shipment was to be sent to Iraq in October 1998. Shibli also said that the factory had recently begun exporting medicine to Yemen, and it was schedule to ship veterinary medicine to Chad by September 1998.[38]

CW ALLEGATIONS AND AL-SHIFA

> *I spent a total of two months in Khartoum. One of the places where the Sudanese like to take you is the pharmaceutical plant. It was a showplace for them.* [39]
>
> Arkansas businessman Bobby May, October 1998

In response to the U.S. attack and allegations, Sudanese Interior Minister Abdul Rahim Mohammed Hussein said that the facility was "a factory for medical drugs" and that "we have no chemical weapons factory in our country."[40] Sudan's head of state, Omar al-Bashir, sai that the Sudan would ask the United Nations to create "a commission to verify the nature of the activity of the plant."[41] Although there are sound reasons to be wary of accepting Sudanese government claims, officials' actions in the wake of the attack are not what one would expect if their statements were mere propaganda. Government ministers arrived at Shifa while the plant was still burning from the attack, which presumably would have been personally hazardous if th plant had been involved in CW production.[42] Press accounts indicated no government or other effort to deny access to the facility, and contrary to their past practice of impeding foreign access to the Sudan, officials began approving visas for journalists almost immediately upon request.[43]

Contrary to U.S. allegations, it is now clear that the plant was not a closed, secretive, or military-run facility. Irish film producer Irwin

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Armstrong, who visited the plant in 1997, said, "the Americans have g this completely wrong. In other parts of the country I encountered heavy security but not here. I was allowed to walk about quite freely."[44] Bishop H.H. Brookins of the African Methodist Episcopal Church of Nashville and Arkansas businessman Bobby May told *New Yorker* reporter Seymour Hersh that they had toured Shifa days before the U.S. attack and were free to move about the plant as they observe workers packaging medicines. On learning of the attack, Brookins said he believed "somebody made a mistake," while May recounted watching CNN coverage of the attack from the Khartoum Hilton: "I'm lying in bed and watching the White House talking about this place being a heavily guarded chemical factory. I couldn't believe my ears. Until then, I had a lot of faith in our intelligence services."[45] Other accounts indicated that the facility often received guests, including the president of Niger, the British ambassador to the Sudan, and groups o Sudanese schoolchildren. Foreigners were allowed to enter the facility freely, it had no special security constraints, and prominent road signs directed visitors to al-Shifa.[46]

Testimony that the plant produced medicine and was not heavily guarded contradicts some initial U.S. claims, but does not preclude th possibility that the Shifa facility may also have been involved in CW production. However, U.S. allegations that the Shifa plant produced a chemical weapon precursor have also been disputed by many sources that are independent or critical of the Sudanese government.

Foreign engineers and managers familiar with the construction and operation of the plant said that it was not suitably designed or operate to permit CW production. The U.S. consultant who designed Shifa, Henry R. Jobe, said that it was not constructed with equipment necessary for nerve agent production.[47] The plant's Italian supplier, Dino Romanatti, said that he had full access to the facility during visits in February and May 1998, and saw neither equipment nor space necessary for CW production. Romanatti described plant resources as very limited; "the availability of tools in the factory was close to zero. You couldn't get a piece of steel, a screw, a saw. To imagine a plant that makes chemical weapons is absolutely incredible."[48]

Thomas Carnaffin, a British engineer who served as technical manage for the plant's construction from 1992 to 1996, said that he never saw any indication of suspect activities at the plant. He told *The New York Times,* "I suppose I went into every corner of the plant. It was never a plant of high security. You could walk around anywhere you liked, and no one tried to stop you."[49] Carnaffin told *The Guardian* that "unless there have been some radical changes in the last few months, it just isn't equipped to cope with the demands of chemical weapon manufacturing. You need things like airlocks but this factory just has doors leading out onto the street."[50] The *Chicago Tribune* quoted Carnaffin as saying, "it was a very simple mixing, blending, and dispensing pharmaceutical facility."[51]

A Jordanian engineer who supervised plant production in 1997, Mohammed Abul Waheed, said "the factory was designed to produce

medicine and it would be impossible to convert it to make anything else."[52] The former co-owner of Shifa, Salem Ahmed Baboud, likewise said the plant was designed only to manufacture particular medicines, and could not have been used for any other purpose.[53]

Some diplomats on the scene agreed with these sources. An unidentified senior European diplomat in Khartoum with experience in tracking CW proliferation said that the Sudan has never been detecte attempting to circumvent the international system for monitoring export of sensitive materials and equipment used in CW production.[54] The German Ambassador to the Sudan, Werner Daum, reported to Bonn b coded telex the evening of the U.S. attack that the plant was neither secret nor disguised. The report said Shifa could "in no way be described as a chemical plant," but was instead "Sudan's largest pharmaceutical plant," and that it used materials imported from China and Europe.[55] Moreover, unidentified senior diplomats in Khartoum told the *Financial Times* that they had no reason to believe the plant produced anything other than pharmaceuticals, and they do not believ that it was linked to bin Laden.[56] Finally, while some Sudanese opposition figures echoed U.S. allegations regarding Shifa, other leaders and the anti-government Democratic Unionist Party stated that they believe Shifa only produced pharmaceuticals.[57]

Thus, according to foreign consultants and diplomats familiar with its recent operations and some independent Sudanese sources, there were no indications of suspicious activities and Shifa apparently had neither equipment nor space for CW production. These multiple accounts, the size of the plant, and the diversity of its pharmaceutical production together suggest that it is highly unlikely that large-scale CW production could have been under way at Shifa.

However, most of these eyewitnesses are not CW specialists and it is possible that their knowledge is incomplete. Hence, their observations do not exclude the possibility that, at some point in time, some portion of the plant was used in small-scale or pilot production of a chemical weapon precursor. Indeed, Will D. Carpenter, a CW expert and former chemical company executive, said that production of a quantity of CW precursor chemicals sufficient for terrorist use might require only "a wide range of available glass-lined equipment that can be tucked awa in a small part of a building."[58]

However, the available evidence does contradict many of the initial U.S. assertions. The factory was neither closed, nor secretive, nor guarded by Sudanese troops, nor in any discernible way part of Sudan's "military industrial complex." Likewise, no evidence has emerged of any direct financial or other obvious link between bin Lade and the plant.[59]

U.S. officials acknowledged a month after the attack that they had no evidence directly connecting bin Laden to Shifa when President Clinto ordered the factory's destruction. Their account of the target selection process, moreover, suggests that desire to act swiftly led them to draw firm conclusions from inconclusive evidence. U.S. officials explained

that intelligence officers searched commercial databases and Sudanese internet sites, including Shifa's, for information. Because they did not find any list of medicines for sale by the plant, they mistakenly concluded that it did not produce pharmaceuticals. U.S. officials have also admitted to uncertainty as to whether their own evidence indicated that precursor chemicals were produced at Shifa, o only stored or shipped through the plant.[60] And Clinton administratio officials eventually acknowledged that the factory did produce pharmaceuticals.[61]

EVOLUTION OF THE U.S. RATIONALE

> *...with the knowledge that we had...had we not hit that target--and we did it at night when we--with knowledge that there was not an evening shift there to minimize collateral damage--had we not hit that target and had bin Ladin used chemical weapons in a terrorist attack, I don't know how we could have looked the American people in the face.* [62]
>
> National Security Advisor Sandy Berger, September 21, 1998

Important aspects of the U.S. explanation for the bombing did not withstand careful scrutiny, and U.S. officials encountered skepticism regarding the motivations of the Clinton administration because just three days prior to the attack the president had admitted to having an improper relationship with a White House intern. In response, U.S. allegations evolved substantially following the August 20 attack. U.S. officials provided additional details regarding the intelligence data that led them to be suspicious of Shifa, and they sought to demonstrate a persuasive link between the plant and bin Laden. In what appeared to be an alternative to the bin Laden connection, some unidentified intelligence officials suggested that the Shifa plant might have been used by Iraq in an effort to circumvent U.N. restrictions on its weapons of mass destruction (WMD) programs. The question of precisely when the United States targeted Shifa for destruction may account for the U.S. problems in sustaining its rationale for the attack. As noted above within three days of the Kenya and Tanzania bombings, senior U.S. officials resolved to bomb some target in the Sudan in their Operation Infinite Reach counterattack. Some accounts indicate that al-Shifa was substituted at nearly the last moment for another alleged CW facility in Khartoum.

An Iraqi Connection

While initial U.S. allegations identified bin Laden as sponsoring the Shifa plant to gain access to CW, some U.S. officials subsequently asserted that Iraqi officials were involved in CW production at the Shif factory.[63] In particular, an unidentified senior U.S. intelligence officia said that a key figure in Iraq's CW program, Dr. Emad al-Ani, had ties to Sudanese officials at the Shifa plant.[64] U.S. officials said the plant's chairman went to Iraq and met with Ani, whom U.S. officials identify as "the father of Iraq's VX program."[65] Undersecretary of

State Thomas Pickering said, "we see evidence that we think is quite clear on contacts between Sudan and Iraq. In fact, El Shifa officials, early in the company's history, we believe were in touch with Iraqi individuals associated with Iraq's VX program."[66]

This alleged Iraqi connection differs from the original rationale for the attack on Shifa. It also contradicts a White House statement of February 16, 1998, that the United States possessed "no credible evidence that Iraq has exported weapons of mass destruction technology to other countries since the [1991] Gulf War."[67] It conforms in general terms to allegations made in a February 1998 congressional task force report authored by Yossef Bodansky, which claimed that Iraq had relocated its WMD assets and development to the Sudan, Yemen, Libya, and Algeria. But the Bodansky report did no identify the Shifa plant as among the facilities in which Iraq had allegedly engaged in CW development in the Sudan, and, as explaine in a subsequent section of this study, the credibility of the report is dubious at best.[68]

The United States may well have received new intelligence data since February, or reevaluated such data immediately after the Shifa attack, and hence reached the conclusion that Iraq had in fact exported CW capabilities to the Sudan. However, the alleged Iraqi connection was aired by only a few officials, and was not consistently cited by officials even after being publicly broached when the U.N. Security Council firs considered Sudan's request for a fact-finding mission to the Shifa facility. In a recent briefing that included press queries regarding both Iraqi defiance of U.N. Special Commission on Iraq (UNSCOM) inspections and the attack on Shifa, National Security Advisor Berger again put forward a detailed justification for the U.S. decision to destro Shifa. However, his explanation included no mention of an Iraqi role in the plant.[69]

The complicated political context of current U.S. policymaking toward Iraq makes it difficult to interpret U.S. officials' statements and omissions regarding a possible Iraqi role.[70] One technical point is clear, however. Production of VX nerve agent requires a level of technical sophistication that has been attained by only a very few countries, including the United States, the Soviet Union, and Iraq. As former UNSCOM official David Kay noted, "Sudan is not a state that you'd normally expect to understand, by itself, the intricacies of the production of VX."[71] Hence, if the Sudan did seek to produce VX, it would be unlikely to achieve success unless it received significant assistance from Iraq. The close ties between the Khartoum and Baghdad regimes since the Persian Gulf War suggest that the political conditions may have been favorable for such collaboration.

Al-Shifa and Terrorism

In a classified briefing, Secretary of Defense Cohen and CIA Director Tenet told U.S. senators that the United States possessed electronically intercepted telephone conversations from within the Shif plant. Combined with other evidence, they said, this indicated that the

Khartoum plant was involved in a CW program that could have been used by bin Laden.[72] It unclear why U.S. officials declined to provide further details on the content of these communication intercepts, given widespread doubts about the attack and the precedent set by the Reagan administration's release of comparable intelligence data to justify its attack on Libya in the 1980s.[73] A senior member of Congress who attended the briefing concluded that the United States apparently does not have unequivocal intelligence linking bin Laden to the embassy bombings.[74] This concern is reportedly what led Attorney General Reno—on being informed of the plans to conduct attacks in the Sudan and Afghanistan—to urge that the attacks be delayed until such evidence could be assembled.[75]

Within a month of the attack, however, federal law enforcement officer indicated that they believed they had acquired adequate evidence to present such claims before a U.S. district court. According to a crimina complaint filed by the FBI against Mamdouh Mahmud Salim, an allege associate of bin Laden and member of the *al Qaada* organization founded by bin Laden, "while al Qaada was located in the Sudan, CS-[confidential source-1] advises that al Qaada and the NIF had a close working relationship in the Sudan, working together to obtain weapons and explosives and in an effort to develop chemical weapons." The complaint says that *al Qaada* was based in Sudan between 1991 and 1996 and that CS-1 was a member of the organization. It also charges that Salim "was involved in arranging weapons production in the Suda as part of a joint effort between al Qaada, the Sudan and Iran." The complaint alleges, moreover, that "at various times from at least as early as late 1993, Mamdouh Mahmud Salim...made efforts in the Sudan and elsewhere to...obtain the components of nuclear weapons...."[76] In a similar vein, an unidentified U.S. State Department official said that bin Laden had sought CW "within his organization and in cooperation with Sudan's National Islamic Front," i order to test "various poisonous substances and improve techniques for using and producing them."[77]

U.S. officials are reportedly uncertain, however, whether the proposed CW acquisition plan was ever carried out, or if Shifa was involved.[78] The State Department official said that bin Laden "provided significant funding for Sudan to build its military-industrial complex," and that several sources indicated that Shifa's owner was a "front man or agent for bin Laden." The official said Shifa's plant manager lives in the house that was occupied by bin Laden before his expulsion from the Sudan, and that reports indicated that one of bin Laden's former financial managers said bin Laden had invested in Shifa.[79]

At the time of the attack on Shifa, U.S. officials were not aware that Salah Idris, an advisor to Saudi Arabia's largest bank, owned the plant.[80] Following the August 20 strikes, U.S. officials sought to link Idris to bin Laden and to terrorist activities. In their Senate briefing, Cohen and Tenet provided what they described as new and not fully evaluated evidence of financial relations between bin Laden and Idris.[81] In particular, they said intelligence data indicated ties between bin Laden and Shifa plant manager Osman Suleiman. They

said that the evidence "was a little tenuous, but it's getting stronger."[82]

Later, unidentified U.S. intelligence officials said they had evidence th Idris had financial dealings with the Egyptian group Islamic Jihad, which assassinated President Anwar Sadat in 1981. They also said bi Laden provides resources to Islamic Jihad and that it is part of his alleged terrorist network. They declined, however, to provide details regarding this alleged relationship. The U.S. officials also said that Idri has financial holdings in a firm that is 40 percent owned by the Military Industrial Corporation, which they say controls CW development in the Sudan. Idris has denied all of these charges.[83]

Independent reports conflict on Idris' relationship with the Sudanese government and the National Islamic Front. *The New York Times* and Deutsche Presse-Agentur reported that several Sudanese businessmen have said in interviews that Idris, who was born in the Sudan and currently holds a Saudi Arabian passport, began investing heavily in the Sudan in early 1996, about the time when bin Laden wa expelled from the Sudan.[84] Idris is said to have invested in what is referred to as the "military industrial complex" in the southern outskirts of Khartoum, where Iraqi technicians allegedly worked to produce chemical weapon agents.[85] Deutsche Presse-Agentur reported that Idris "allegedly has good contacts to key leaders of Sudan's Islamic fundamentalist regime."[86] It does seem plausible that in order to conduct business in the Sudan, it would have been useful and might have been necessary for Idris to have enjoyed good relations with the Khartoum regime.

However, the *Financial Times* reported that Idris' family has close ties to the *Khatmiyya* religious sect, which is "vehemently opposed to the Islamist government in Khartoum" and part of the opposition National Democratic Alliance (NDA). If true, Idris is unlikely to be a business partner or otherwise allied with bin Laden, who had close ties to the Islamist regime that the sect and the NDA opposes.[87] The *Wall Stre Journal* described Idris as a "westernized Saudi Arabian banker with n known ties to Islamic extremists," and noted that Idris was formerly a senior manager at the National Commercial Bank of Saudi Arabia, which has close ties to the Saudi royal family.[88] Since the Saudis previously stripped bin Laden of citizenship and expelled him from Saudi Arabia, Idris' past position again makes ties to bin Laden unlikely. Idris is also on good terms with some leaders of the Sudanes opposition, and his legal representative in the Sudan, Ghazi Suleiman, leads an opposition lawyers' organization that defends anti-governme activists. Suleiman has called for an international fact-finding mission t investigate the U.S. allegations and condemned the U.S. attack on Shifa. He said, "I want to persuade the Americans that they have mad a mistake. This was no chemical weapons facility; do you think that, if i was, all the country's pharmacy students would come to visit as part of their training? The Americans could not have found its equal, for qualit and sophistication, in all of Sudan."[89]

Whatever his prior relation with the Sudanese government, since the

August 20 attack Idris has distanced himself from government efforts t exploit the U.S. destruction of Shifa for propaganda purposes. Idris reportedly did not participate in state-sponsored demonstrations at the scene of the destroyed factory. He has called for an international investigation of the plant and its operations, but publicly rejected effort by the Sudanese government to politicize the dispute with the United States and refused to accept monies raised by a new tax on Sudanese workers that the government says it is collecting to rebuild Shifa.[90]

Targeting Shifa

It is unclear precisely when U.S. officials decided to destroy the Shifa plant. This is a critical question, because excessive haste—coupled with the exclusion of most U.S. military and intelligence officials from the planning for Operation Infinite Reach—could explain why U.S. officials were apparently ill informed about the facility.

ABC News reported on August 26 that "it's now widely understood that the Shifa plant was added to the target list literally hours before the attack."[91] A *Newsweek* report of August 31 said Shifa was added to the target list on the weekend of August 15-16, a few days before the attack.[92] However, senior U.S. intelligence officials said on August 3 that the Shifa facility was designated as a possible target "months" earlier. Other reports, though, again indicated that the facility was selected closer to the time of the attack.[93] On September 1, ABC News repeated its prior assertion that "military and intelligence official say the Sudanese chemical plant was added to the target list less than 24 hours before the missile strike."[94]

A September 21 report in *U.S. News & World Report* marked a shift in accounts about the targeting process. The brief report said that a third target was pulled from the list less than 24 hours before the August 20th attacks. The change was said to have been made because officials reportedly feared its destruction would result in high civilian casualties. Pentagon officials, however, refused to identify the target that was not destroyed, saying only that it was in the Sudan.[95] Given these conflicting accounts, it thus remains unclear whether a second target was *dropped* from a list that included Shifa, or if Shifa was *substituted* for another target in the Sudan. The latter possibility would account better for U.S. officials' confusion about the facility.

In any case, in testimony before the Senate Armed Service Committee General Shelton confirmed that a proposed target was removed from the list on the basis of objections of one of the joint chiefs of staff.[96] *The New Yorker* reported that the target was a storage facility in Khartoum that the CIA believed was linked to bin Laden, but which wa removed from the target list in large part because there was no soil sample indicating CW activity at the facility.[97]

A "SMOKING GUN"

> *There were other facilities where there was really hard evidence, but there was not a smoking gun; there was not a*

soil sample.[98]

Unidentified U.S. official, August 26, 1998

For U.S. decisionmakers, the most compelling reason to target Shifa appears to have been their belief that the United States had physical proof that the plant was involved in VX precursor production. Unidentified U.S. intelligence officials said on August 25 that the Unite States possessed a soil sample gathered clandestinely near the Shifa plant that contained "fairly high amounts" of O-ethyl methylphosphonothioic acid, or EMPTA.[99] The next day, Undersecretary of State Thomas Pickering said the United States had "been aware for at least two years that there was a serious potential problem at this plant that was struck," but decided to attack only after collecting the soil sample in "recent months."[100] According to CIA Director Tenet, the CIA sent a human agent to Shifa who entered the facility grounds, evaded plant guards, and collected a soil sample from a designated area within the gates of the plant.[101] He said that a U. commercial laboratory analyzed the sample and found a level 2.5 time that necessary to be considered a "trace" presence of EMPTA.[102] A unidentified senior U.S. intelligence official said the compound "is a substance that has no commercial applications, it doesn't occur naturally in the environment, it's not a byproduct of any other chemical process. The only thing you can use it for, that we know of, is to make VX."[103] The official said, moreover, that Iraq is the only country known to have produced VX using EMPTA.[104]

U.S. officials were correct that Iraq is the only country that has produced VX using EMPTA. However, they were mistaken in stating that EMPTA can only be used to produce nerve gas. More importantly, however, such a test result indicating the presence of EMPTA could nonetheless be erroneous. This is true especially because the physica link between Shifa and the soil sample remains unclear. Hence such a test result would not constitute definitive proof; it is not a "smoking gun." Nevertheless, if EMPTA was present at Shifa when it was destroyed on August 20, traces of the chemical almost certainly remai among the wreckage of the plant.

VX is a highly lethal, viscous fluid resembling motor oil in its physical appearance. It can be produced by several different physical processes. Four precursor chemicals that can be used in sequence to produce VX--phosphorus trichloride (PCl_3), methylphosphonous dichloride (SW), methylphosphonothioic dichloroide (SWS), and O-ethyl methylphosphonothioic acid (EMPTA)--are also toxic, although fa less so than VX. All four are dual-use chemicals; they have both military applications and legitimate civilian uses. The first of these, PCl_3, is used widely and hence appears on Schedule 3 of the CWC, which requires the declaration of plants producing over 30 tons of Schedule 3 chemicals annually, and inspection of facilities that produc over 200 tons per year. SW, SWS, and EMPTA are included on Schedule 2B of the CWC, indicating that facilities producing them may be subject to inspection if the facility's annual production of the

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precursor exceeds the declaration threshold of one metric ton. By contrast, the precursor used by the United States in producing its stockpile of VX, O-ethyl O-2-diisopropylaminoethyl methylphosphonite or QL, is on Schedule 1, a list of chemicals banned outright by the CWC.[105]

U.S. officials were apparently under the mistaken impression that EMPTA is not permitted by the CWC. An unidentified official of the U. Arms Control and Disarmament Agency (ACDA) told the *Chicago Tribune* on August 26 that EMPTA is on CWC Schedule 1. ACDA altered its position after Organization for the Prohibition of Chemical Weapons (OPCW) official Ron Manley noted that EMPTA falls on Schedule 2B of the Convention, which lists dual-use chemicals.[106]

The inclusion of EMPTA on Schedule 2 is significant. It indicates that chemical weapon specialists who developed the CWC schedules identified it as being part of a category of chemicals some of which have or could have industrial applications. OPCW spokesperson Donato Kiniger-Passigli confirmed that EMPTA could have "legitimate commercial purposes," such as fungicide production.[107] *Chemical and Engineering News* reported that EMPTA is described in research literature as having applications in producing fungicides, pesticides, and anti-microbial agents.[108] An unidentified State Department official acknowledged that EMPTA can be used in "certain insecticides as the germination inhibitor for wheat, or in a chemical weapons test kit. But after extensive research we have found no indication that EMPTA has ever been used commercially in any of these applications."[109] A spokesperson for a U.S. firm that produces EMPTA for research purposes, Aldrich Chemical Corporation, said the firm was not aware of any present commercial application for the chemical.[110]

Although U.S. assertions that EMPTA is banned and has no possible legitimate applications are incorrect, it is important to recognize that th chemical would have no role in Shifa's known legitimate medicinal production. Therefore, if EMPTA were present at Shifa, this would almost certainly indicate that the facility was in some way involved in the production of VX. Nevertheless, for several reasons, a lab test result indicating the presence of EMPTA in a sample taken from soil near Shifa does not necessarily indicate that the facility was involved i its production, nor that EMPTA or VX production was underway elsewhere in Khartoum.

According to Jonathan B. Tucker, director of the Chemical and Biological Weapons Nonproliferation Project at the Monterey Institute of International Studies, a reliable chemical sampling and analysis protocol includes four elements. First, multiple control samples should be gathered from locations comparable to the site under investigation, where the test sample is collected. The control samples are necessary to ensure that any chemical detected is not an environmental contaminant, such as a pesticide residue. Second, the control and test samples should be numerically coded and analyzed in a "blind" manner. This is necessary to avoid inadvertent bias or deliberate

tampering in the analysis process. Third, the control and test samples must be sealed and their chain of custody monitored carefully at every step from the sampling locations to the analysis in the laboratory, in order to prevent inadvertent contamination or deliberate tampering. Finally, the control and test samples should be divided and analyzed b more than one laboratory, and if possible, by using more than one independent analytic method. These measures reduce the likelihood o "false positives" or "false negatives," i.e., test results that mistakenly register the presence or absence of the chemical under scrutiny.[111]

There are several possible reasons why such a soil sample might test positive for EMPTA. First, U.S. officials may be correct in their allegation that the VX precursor was produced at Shifa. But there are other potential explanations for the test result, however. It is possible that the sample was not taken from Shifa, or that the sample was contaminated or mishandled, either by the human agent who gathered the sample for the CIA or by whoever carried it from the Sudan to the United States. Trace elements of EMPTA might have been found in th soil sample without their being present at Shifa, as a result of not following reliable procedures or through a deliberate effort to mislead U.S. officials. It may not be feasible to implement such procedures under the dangerous circumstances of clandestine intelligence gathering. Because of the nature of U.S. relations with the Sudan, however, it is also possible that the United States had to employ an agent of uncertain trustworthiness.

Since the United States withdrew all diplomatic and intelligence personnel from the Sudan in January 1996, it has had to rely on informants whose allegiance and reliability are not always assured. Shortly after all U.S. personnel were evacuated due to fear of imminen terrorist threats against Americans, the CIA retracted over 100 intelligence reports—including those spurring the fear of attacks and linking the Sudanese government to terrorist actions—because it concluded that the source of the reports was a fabricator.[112] Based on this and other informants' reports of terrorist threats that were not corroborated and never materialized, an unidentified Clinton administration official told *The New York Times* that "the decision to target Al Shifa continues a tradition of operating on inadequate intelligence about Sudan."[113] Unidentified U.S. officials who questio the U.S. attack on Shifa said that dubious intelligence has driven U.S. policy toward Sudan for at least the last three years.[114] Hence the reliability of the informant who collected the sample is questionable, and it is possible that the agent could have deliberately tainted the sample or collected it from another location in the Sudan.

CIA chief Tenet said, however, that the operative had submitted to "repeated" polygraph tests to gain assurance that the informant had carried out the mission as instructed.[115] An unidentified U.S. intelligence official said, "it was not done sloppily." This official said th sample was divided into three parts, each of which was tested by the same private laboratory.[116] An unidentified U.S. State Department official said, "we have high confidence that the laboratory that analyze the Sudanese samples and ultimately detected EMPTA did so correctl

and in accordance with scientifically accepted procedures and protocols. The lab has a long history of doing quality analysis." The official also said, "we know of no other factors in the environment that could result in a positive EMPTA signature."[117]

A U.S. intelligence official declined to provide *Chemical and Engineering News* with information on the sample's chain of custody o what other chemicals were detected in the sample, and would not identify the lab that analyzed it.[118] It is unclear why the CIA asked a private lab to examine the soil sample, instead of the U.S. laboratories that specialize in CW research at the U.S. Army Chemical Research, Development, and Engineering Center at Aberdeen Proving Grounds, Maryland, or at Lawrence Livermore National Laboratory, California.

In any case, despite assurances from U.S. officials, their account of th sampling and analysis procedure used in this case indicates that it did not conform to the procedures necessary to maximize confidence in th test's reliability.[119] Hence, the laboratory test may have reached a false positive result due to confusion of EMPTA with another substanc with a similar chemical structure. A Swiss chemist currently examining an Iraqi missile warhead for VX residue for the United Nations, Alfred Frey, said that finding EMPTA "could be a sign of degradation of VX, but this would not be sufficient" to verify that the plant was involved in VX production.[120] Hank Ellison, former director of the U.S. Army's chemical and biological defense programs at Fort Campbell, Kentucky said the chemical structure of EMPTA resembled an agricultural insecticide, Fonofos, which is commercially available in Africa.[121] Because of its widespread use, production of Fonofos (O-ethyl S-phenyl Ethylphosphonothiolothionate) is explicitly exempt from reporting requirements under the CWC.[122] It is uncertain whether Fonofos has been used for agricultural or other purposes in or around Khartoum, which could lead to its appearance in a soil sample taken from the area.

Ellison said, "I imagine this soil sample wasn't taken under the best of circumstances, by somebody placing it in a cooler and immediately sending it to a lab. And quality control for the storage and manufacture of pesticides and insecticides is not the highest in the world, so that could increase the possibility of seeing similarities in the chemical structure."[123] OPCW spokesperson Kinigier-Passigli said some research indicated that EMPTA could result as a byproduct of the breakdown of common pesticides.[124] An unidentified U.S. intelligence official said the sample was collected in June 1998, but was not analyzed until July 1998.[125] Thus, the lab test indicating the presence of EMPTA might have been a false positive, an inaccurate finding that the chemical was present due to its similarity with other artificial compounds present in the environment. The United States ha declined to make the soil sample itself available for independent analysis.

A few days after the attack, some unidentified U.S. officials suggested an alternative explanation for the presence of EMPTA: the possibility that the precursor was stored in or transported near al-Shifa, instead o

being produced by it. They said the chemical might have been produced at another plant in Khartoum, which was not attacked because it is located in a residential neighborhood and U.S. officials feared that its destruction would cause heavy civilian casualties.[126] According to an unidentified U.S. State Department official, however, "we had previously collected samples from other suspected sites in Sudan, but only the sample from the Shifa factory tested positively [sic for chemical weapons precursors."[127]

More importantly, the suggestion that Shifa may not have been directly involved in precursor production is clearly at odds with the official U.S. rationale for attacking the plant. Senior U.S. officials have asserted specifically and unequivocally that Shifa was producing a chemical weapon precursor at the time it was attacked by the United States. These officials include President Clinton, Secretary of Defense Cohen Chairman of the Joint Chiefs of Staff Shelton, National Security Adviso Berger, Secretary of State Albright, Ambassador to the United Nations Bill Richardson, Deputy Undersecretary of State for Political Affairs Thomas Pickering, Assistant Secretary of State for Near Eastern Affair Martin Indyk, and Deputy State Department Spokesman James Foley.[128] On September 8, Department of Defense spokesperson Kenneth Bacon said, "we believe now, as we did at the beginning, that this plant [Shifa] does make EMPTA, a precursor for VX."[129]

One issue that remains unclear is the physical path or process by which U.S. officials believe EMPTA would have been dispersed outsid the plant. The sample was reportedly collected "within meters" of Shifa.[130] A U.S. intelligence official quoted in an August 25 CNN report said the material found in the soil sample at the Khartoum plant could have impregnated the dirt as a result of either "airborne emissions or spillage from the manufacturing process."[131] However, EMPTA is of relatively low volatility and hence unlikely to travel in vapor form, and it is not clear why an effluent system that carried EMPTA in liquid form would have deposited it so close to the facility. Another possibility is that some quantity of the chemical might have been spilled while being stored or transported by container. If that wer the case, however, the level of EMPTA detected in the sample would probably have been much higher than that which was found.[132] An unidentified senior intelligence official said, "all we know is that it was there."[133] But it is not self-evident why EMPTA would appear in a so sample near Shifa, even if the chemical were being produced within th facility.

This crucial question of whether the Shifa plant was involved in VX precursor production could be resolved with confidence through on-sit inspection of the Shifa debris. According to Jonathan Tucker, the methyl-phosphorous chemical bond in EMPTA is a diagnostic indicato of nerve agents and is very difficult to break, which means that "if larg quantities of EMPTA were produced at this plant, there should still be traces of it or related degradation products."[134] Amy Smithson of the Henry L. Stimson Center concurred that EMPTA residues would surviv fire, such as that which consumed Shifa.[135] Kathleen Vogel, a research chemist and post-doctoral fellow with the Chemical and

Biological Weapons Nonproliferation Project, said that if the initial hea subsequent moisture, and other factors led EMPTA to degenerate into hydrolysis products, these should persist and would be readily-identifiable through chemical analysis.[136] If VX itself had been present, traces would likewise remain since its boiling point is not reached until 298° Celsius.[137] Alastair Hay, chemical pathologist at Leeds University, agreed that if EMPTA were ever produced at the Shifa plant, traces would almost certainly remain in the debris.[138] The *Chicago Tribune* quoted another CW expert, who said "modern techniques are very powerful. I'd be wary of opening a facility to independent analysis unless I were sure that I would not be found out."[139]

British CW researchers have set a telling precedent in this regard. In August 1988, the Kurdish village of Birjinni in northern Iraq allegedly suffered a CW attack by Iraqi aircraft. In June 1992, researchers commissioned by the U.S. organization Physicians for Human Rights collected samples from the soil, munition fragments, and clothing and other gravesite material in the village. They followed a reliable sampling and analysis protocol, and examined the evidence using several chemical analytic methods. Although four years had passed between the attack and sampling, analysts were able to demonstrate unequivocally that sarin and mustard gas residues were present, even at concentrations as low as parts per billion.[140]

If EMPTA was present in significant quantities at the time Shifa was attacked, detectable traces of the chemical would not only remain on equipment and containers used for its production and storage, but could also be scattered widely among the debris as a result of the missile explosions and fire that destroyed the plant. The remains of th Shifa facility are not comparable to an operating dual-use CW production facility, where sophisticated techniques might be employed to attempt to deceive inspectors. Unlike operating facilities, where sealed containers and machinery could potentially be hidden or removed to deny access to inspectors, if EMPTA were produced or stored in Shifa at the time when it was destroyed, chemical proof that cannot be readily eliminated lies in the rubble in Khartoum.[141]

THE SUDAN AS A CHEMICAL WEAPON PROLIFERANT: PRIOR ALLEGATIONS

> *...although we are aware of worrisome allegations that Iran has provided chemical weapons to Sudan, these have emanated almost exclusively from the Sudanese opposition and have not been corroborated. Nevertheless, this is a serious issue which we continue to monitor closely, not only with respect to Iran but also with regard to Iraqi support in this regard.*[142]
>
> Assistant Secretary of State George Moose, May 15, 1997

The current U.S. charges regarding Shifa are not the only allegations that have been made concerning CW in the Sudan. Earlier charges,

however, did not mention the Shifa facility or the possible production o VX in the Sudan, nor were they ever publicly confirmed by U.S. officials. While these facts cast doubts on the recent U.S. allegations, summary of the previous charges indicates that there are reasonable grounds for concern that the Sudan may be developing chemical weapons.

Allegations of CW acquisition and use by the present government of the Sudan date as far back as 1989, when the Bashir regime took power in a military coup.[143] The claims were made by Ugandan officials and opposition groups engaged in fighting the Bashir government, however, and were never corroborated by independent sources. Since 1989, a number of additional reports alleged that the government of the Sudan procured and used CW. All reports that specified a particular CW agent identified it as mustard gas.[144] In response, the U.S. Department of State investigated "intelligence and Embassy reports from Sudan [that] discussed local allegations of the use of `gas' bombs by the Sudanese Air Force." The report issued in March 1992 concluded that "details remain sketchy...and appear to be insufficient to trigger the requirement for a Presidential determination and report to Congress regarding chemical or biological weapons [CBW] use under the recently enacted CBW sanctions legislation."[145]

Since 1995, members of the Sudanese People's Liberation Army (SPLA), the Sudanese National Democratic Alliance (NDA), and Ugandan security officials have alleged repeatedly that the Sudan produced CW with Iranian and/or Iraqi assistance, and employed mustard gas in attacking civilians in the Nuba mountains and against SPLA forces.[146] Because these CW allegations were never corroborated, independent reports on CW proliferation did not identify the Sudan as a CW proliferant or "country of concern."[147]

U.S. government statements likewise did not assert that the Sudan posed a CW threat. The 1997 U.S. Department of Defense annual report on WMD did not identify the Sudan as among the states in the Middle East and North Africa posing the "most pressing" WMD threats to regional stability.[148] The CIA's 1997 report on proliferation did not include the Sudan, indicating a judgment that the Sudan was among those "countries that demonstrated little acquisition activity of concern."[149] On January 28, 1998, U.S. Assistant Secretary of State for Intelligence and Research Phyllis E. Oakley expressed concern before the Senate Select Committee on Intelligence about the acquisition of advanced *conventional* weapons by the Sudan and othe states identified by the United States as sponsors of terrorism. Oakley did not, however, identify the Sudan as among those states posing a WMD threat to U.S. national security.[150]

As noted above, a widely cited February 1998 U.S. congressional task force report alleged that Iraq transferred CW to the Sudan and Yemen during 1991-1992, and that "in 1993, Iraq sent additional CW to Suda this time through Iran." It also asserted that, beginning in 1997, Iraq transferred equipment and materials for both chemical and biological

weapons production facilities that it built in the Sudan. The report was said to be based on U.S., German, and Israeli intelligence sources.[151]

In a reply on February 16, 1998, an unidentified White House official said that the United States has "no credible evidence that Iraq has exported weapons of mass destruction technology to other countries since the Gulf War."[152] Likewise, German intelligence sources said they had no evidence to support the charges, and the British Foreign Minister told Parliament on March 10, 1998, that his office had no evidence to substantiate the allegations. The credibility of the author o the report, Yossef Bodansky, was questioned because of his alleged anti-Arab and anti-Muslim bias, and due to prior assertions viewed as bizarre.[153] The Bodansky report also contains basic factual errors regarding Scud missiles and nuclear material formerly possessed by Iraq, and in regard to alleged efforts by Iraq to enrich uranium in Libya which directly cast doubt on the credibility of the report.[154]

The lack, prior to August 20, 1998, of an official U.S. charge about C in the Sudan does not necessarily entail an absence of suspicions. It could instead reflect the bureaucratic nature of proliferation analysis, i which analysts with the strongest suspicions had been unable to obtai senior support that would lead to an official public accusation.[155] This same fact suggests, however, that the available evidence may no have been decisively convincing. Before the U.S. attack, it appears th most nonproliferation analysts and U.S. government officials viewed allegations that the Sudan sought CW as meriting further attention, bu as yet unsubstantiated.

ALLEGED CW PRODUCTION FACILITIES IN THE SUDAN

> *...to find the necessary funding to develop the chemical and bacterial weapons factory that the Sudanese Government has established in the Khartoum Bahri suburb of Kubar, in cooperation with the Iraqi Government...*"[156]
>
> Paris-based news magazine *Al-Watan Al-'Arabi*, October 31, 1997

Since mid-1997, sources critical of the Sudanese government have alleged that CW production facilities are operating or are under construction in several locations in the Sudan. Prior to August 20, 1998, none of these sources identified al-Shifa Pharmaceutical Factor in Khartoum as among the Sudan's alleged CW facilities.[157] Human Rights Watch and Sudanese opposition leaders have called for a United Nations investigation of the alleged CW facilities, and have reiterated this appeal since the strike on al-Shifa.[158] In the absence of on-site inspection of the facilities, it will likely remain difficult to reac a confident determination regarding these allegations.

The locations of three alleged production facilities are in or close to Khartoum: Kubar, Kafuri, and Sheggara. On October 31, 1997, a repor in the Paris-based, pro-Saudi Arabia, *Al-Watan Al-'Arabi* news

magazine said that leaders of Islamic terrorist organizations held a strategy-making meeting at the home of Hassan al-Turabi (Speaker of Sudan's Parliament and head of the National Islamic Front) in al-Manshiyah, Sudan. The report said the leaders agreed to "find the necessary funding to develop the chemical and bacterial weapons factory that the Sudanese Government has established in the Khartou Bahri suburb of Kubar, in cooperation with the Iraqi Government, whic smuggled special materials for this factory after the end of the Gulf War."[159] This location is reportedly near the Shifa facility, although Shifa is generally characterized as a more industrial than residential location. Associated Press reported that the United States decided not to attack this facility in Operation Infinite Reach due to its proximity to residential neighborhoods and diplomatic residences.[160]

On July 16, 1997, the secretary general of the opposition NDA said th the Sudanese government had built a CW production factory in Kafuri, also in the north of Khartoum.[161] On January 14, 1998, the Beirut newspaper *al-Diyar* reported that Arab security forces had observed Sudanese government efforts to acquire chemical and biological weapons production technology as part of its "War Industrialization Program." According to the report, the project is headquartered in the Kafuri suburb of Khartoum and has several facilities located in Khartoum, the agricultural town of Fao, and the more industrialized cit of Shandi in northern Sudan.[162]

Human Rights Watch has recently noted opposition NDA charges that Iraqi CW are stored at the Yarmouk Military Manufacturing Complex located 12 kilometers south of Khartoum in Sheggera.[163] *The New York Times* apparently referred to this facility when it reported that "a military complex on the southern outskirts of the city" was indicated by unidentified foreign diplomats and a former Sudanese government official in Khartoum as the "most likely place for the [chemical weapon or precursor] production to have been taking place."[164]

On September 12, 1997, the *Indian Ocean Newsletter*, published in Paris, reported that a CW factory is under construction south of Khartoum, near Abu-Dawm.[165] This author was unable to find this location on maps or other sources of geographic place names in the Sudan, and the name given may be an unofficial one.

According to a November 16, 1997, story in the Kampala-based *Nand Times*, Ugandan security officials said they had confirmed the existence of a factory producing mustard gas at a secret location in th city of Wau.[166] This seems an unlikely location for a sensitive facilit however, given its proximity to the fighting in the south and its potentia capture by SPLA rebels.

Reports of alleged CW facilities thus include several distinct locations in the Sudan. Only the Shifa site, where the United States alleges EMPTA was being produced, has been examined by independent foreign sources. However, although many journalists and others have examined tne Shifa wreckage and verified that the plant was engaged in pharmaceutical production, only qualified CW verification specialist

using appropriate equipment and procedures can verify whether EMPTA was also being produced in the plant.

A U.N. SECURITY COUNCIL FACT-FINDING MISSION

> *In making the determination...the President shall consider...whether, and to what extent, the government in question is willing to honor a request from the Secretary General of the United Nations to grant timely access to a United Nations fact-finding team to investigate the possibility of chemical or biological weapons use or to grant such access to other legitimate outside parties.*[167]
>
> U.S. Code Title 22 - Foreign Relations and Intercourse, Chapter 65 - Control and Elimination of Chemical and Biological Weapons, January 6, 1997.

In an uncharacteristic and unprecedented move, the government of th Sudan proposed that the U.N. Security Council conduct an on-site inspection of the Shifa facility, to determine whether it had been used t produce CW or precursor chemicals. The appeal was particularly surprising because the U.N. Security Council had explicitly condemne the Sudan and imposed air travel sanctions against it in 1996 for failin to cooperate with an investigation of an attempt to assassinate Egyptian President Hosni Mubarak.[168]

In a similarly peculiar response, the United States opposed and sough to block an international investigation of Shifa's production. U.S. opposition to the proposal contrasts with its longstanding and firm support for the efforts of UNSCOM to investigate potential WMD capabilities and installations retained by Iraq. It diverges, moreover, from the spirit of U.S. chemical and biological weapons legislation, which—as quoted above—commends attention to the willingness of alleged proliferants to accept United Nations-sponsored fact-finding missions regarding their alleged CBW activities.

Immediately after the attack on Shifa, the Sudan formally requested that a U.N. Security Council fact-finding mission be sent to Khartoum t examine the destroyed plant and determine its production. Gobrial Roric, Sudanese minister of foreign affairs, wrote in an August 21, 1998, letter to the U.N. Security Council: "I assure you once again of our readiness to provide the Council with all data and information that may need to study this matter in all its aspects."[169] Sudanese Foreign Minister Mustafa Osman Ismail later said, "for us we have no veto for Americans, non-Americans. Any committee to be established by the Security Council" would be acceptable to the Sudan.[170]

Sudan's request won support from the Arab League, the Organization of the Islamic Conference, the Group of Arab States of the United Nations, the Non-Aligned Movement, the Intergovernmental Authority Development, and the Organization of African Unity.[171] These international organizations represent nearly every state in Africa and the Middle East—including several allied with the United States and

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some with antagonistic relations with the Sudan—as well as scores of states in the developing world outside these regions. The Security Council first considered the question briefly on August 24, 1998, but took no action.[172]

Following the meeting, the U.S. chargé d'affaires to the United Nations Peter Burleigh, expressed opposition to such a fact-finding mission.[173] U.S. Ambassador to the United Nations Bill Richardson said, "we don't think an investigation is needed. We don't think anything needs to be put to rest."[174] U.S. officials say the United Nations is not an appropriate forum to address the question.[175] As National Security Advisor Sandy Berger explained, "well, I don't think it's necessary. I think one never knows what months later another group will or will not find. I have no question in my mind...that that was an appropriate target."[176] Deputy Undersecretary of State for Politic Affairs Thomas Pickering concurred: "it should be noted that visual inspection of facilities like the El-Shifa chemical plant [sic] are often no sufficient to reveal a connection with the production of chemical weapons. ...in the past, even expert UNSCOM visits to a similar plant i Iraq did not turn up clear and compelling evidence."[177]

On September 28, the Group of Arab States of the United Nations submitted a draft resolution to the U.N. Security Council, which

> requests the secretary-general to dispatch a technical competent fact-finding mission to study the following points: a) whether al-Shifa has been engaged in the production of chemical weapons ingredients; b) whether there exists any link either financial, technical, logistical or otherwise between al-Shifa and the Osama bin Laden terrorist network; c) requests the secretary-general to submit a report on the findings of the mission to the Security Council within one month.

The Security Council held a preliminary discussion, but Council President Hans Dahlgren of Sweden announced, "the conclusion of today's discussion was that consultations will continue among members."[178]

Sudanese diplomats said they seek to challenge the United States to veto such a resolution.[179] Sudanese Ambassador to the United Nations Elfatih Erwa said if the United States vetoes the resolution, it would be in effect saying to the world, "we do what we want to do. We don't have to obey international law."[180] The United States seeks to forestall either an investigation or a formal vote on conducting one, an has lobbied Security Council members regarding the evidence that U. officials say justified the attack on Shifa.[181] Because the United States enjoys veto power, no U.N. Security Council investigation can be undertaken without U.S. agreement. According to a recent news report, the Sudan may be willing to drop its call for an investigation in exchange for an end to U.S. economic sanctions and revocation of the U.S. classification of the Sudan as a state sponsor of terrorism.[182]

The political dimension to this dispute between the Sudan and the United States is unfortunate, and this proposed quid pro quo would be particularly undesirable. The allegations of CW development in the Sudan merit serious international attention, and a U.N. Security Council-mandated expert team with appropriate technical capacities and adequate political support could make a reliable assessment of th allegations of CW development in the Sudan. The Sudanese government has called for a U.N. investigation of the bombing site, but it also categorically denies that CW are being produced *anywhere* in the country.[183] The categorical terms of its repeated denials and its direct request for a Security Council investigation invite the possibility of a broader inquiry. An arrangement in which the United States supports a meticulous U.N. inspection of Shifa, and Sudan accepts thorough on-site U.N. inspection of its other alleged CW facilities, would make it possible to address many unanswered questions.

CONCLUSIONS

> *The facilities the U.S. attacked on August 20, 1998 were central to the bin Ladin network's ability to conduct acts of terror around the world.*[.184]
>
> Coordinator for Counterterrorism, Department of State, August 21, 1998
>
> *...there are lots of connections and added to that, the physical presence of the precursor makes a compelling case that it probably wasn't a bad thing to take the plant out.*[.185]
>
> Anonymous senior U.S. intelligence official, August 25, 1998.
>
> *As an American citizen, I am not convinced of the evidence.*[186]
>
> Unidentified Clinton administration official, September 21, 1998.

This review of the available open-source evidence indicates that there are insufficient grounds in the public domain to reach a conclusive determination about whether the Sudan possesses CW, or whether th Shifa factory produced the VX precursor chemical EMPTA. Public statements of U.S. officials and the evolving rationale for the U.S. attack on Shifa, however, indicate that classified U.S. intelligence data about alleged CW activities in the Sudan may likewise be of uncertain reliability.

Certainly, the evidence reviewed in this report suggests possible deficiencies in the collection, analysis, and use of intelligence data leading to the attack on Shifa. There are doubts about the credibility of U.S. allegations about the plant in part because of the haste and

secrecy of the decisionmaking that led to the attacks, and because U. officials had never clearly identified the Sudan as a CW proliferant. Even more importantly, however, senior U.S. officials were shown to have been ignorant of key facts at the time of their decision to bomb th plant. U.S. political authorities and intelligence officials were not awar that: 1) Shifa was an important producer of pharmaceuticals in the Sudan and its products were widely available in Khartoum pharmacies 2) U.S. officials at the United Nations had approved Shifa's proposed export of veterinary medicine to Iraq under the U.N. oil-for-food program; 3) Shifa was not under heavy military guard but quite open to Sudanese and foreign visitors; 4) the plant was not owned by the government but by a Saudi banking consultant with some ties to the Sudanese anti-Islamist opposition; 5) EMPTA is not banned by the CWC and could have legitimate commercial applications; and most importantly, and 6) without following a reliable CW sampling and analysis protocol—which would be very difficult to implement through covert action—even a competent laboratory could reach a "false positive" test result in analyzing a soil sample due to the presence of pesticide or insecticide residue.

It remains possible that Al-Shifa Pharmaceutical Factory may have been involved in some way in producing or storing the chemical compound EMPTA, which can be used in the production of VX nerve gas. However, review of the evidence available in open sources offers only limited support for the U.S. allegation. On balance, the evidence available to date indicates that it is more probable that the Shifa plant had no role whatsoever in CW production.

Given the range of allegations about other sites in the Sudan, howeve there are also grounds to doubt its government's claims. Opposition leaders and Human Rights Watch have called for a U.N. investigation of suspected CW facilities in the Sudan, for fear that if the Bashir regime gains access to CW, it may use them against the Sudanese population in the country's civil war.[187]

The convergence of a set of unprecedented conditions has created an opportunity to investigate all the charges more thoroughly. The unexpected willingness of the Sudanese government to accept international scrutiny, widespread skepticism about recent U.S. claims about al-Shifa but a prior pattern of allegations of CW development elsewhere in the Sudan, and growing recognition of humanitarian and security interests that the government of the Sudan not acquire VX or other nerve agents have combined to raise the possibility of a U.N. Security Council investigation of Shifa and other alleged CW facilities in the Sudan. The United States could contribute relevant intelligence data and technical expertise to aid a U.N. investigation. Such an initiative would also offer an opportunity to press the Sudan to join the Chemical Weapons Convention, implementation of which would entail ongoing inspections of potential dual-use facilities in the country.

It would be profoundly regrettable if U.S. opposition to an examination of al-Shifa led to the foreclosure of a unique and perhaps fleeting opportunity for an international investigation of Sudan's alleged CW

program. Without a U.N. effort to examine the remains of al-Shifa and other alleged CW production and storage facilities in the Sudan, any efforts the Sudanese government may be taking to acquire CW will almost certainly continue unhampered.

Notes:

[1] The author is very grateful to Erik Jorgensen for his valuable research assistance, and to Gordon Burck, Seth Carus, Eric Croddy, Gaurav Kampani, Jeff Knopf, Jason Pate, Amy Sands, Jonathan Tucker, and Kathleen Vogel for their insightful criticism of earlier drafts of this manuscript. The analysis presented herein is that of the author, and does not necessarily represent the views of any of these individuals or of the Center for Nonproliferation Studies.

[2] The treaty text and a listing of state parties to the Chemical Weapons Convention are available from the Organization for the Prohibition of Chemical Weapons (http://www.opcw.nl/).

[3] For a detailed exposition of Sudan's response to U.S. allegations regarding Shifa, see News Conference with Mahdi Ibrahim Mahamma Sudanese Ambassador, The National Press Club, Washington, D.C., September 2, 1998.

[4] William J. Clinton, "Address to the Nation by the President," The White House, Office of the Press Secretary, August 20, 1998 (http://www.whitehouse.gov/WH/New/html/19980821-19043.html).

[5] Russell Watson and John Barry, "Our Target Was Terror," *Newsweek,* August 31, 1998, p. 28; Richard J. Newman, "America Fights Back," *U.S. News & World Report,* August 31, 1998, p. 42.

[6] M.J. Zuckerman, "Terrorism War Spawns Silence," *USA Today,* September 23, 1998, p. 1.

[7] "Most JCS Members Not Consulted Before Afghanistan, Sudan Bombings," Associated Press, October 6, 1998; Watson and Barry, "Our Target Was Terror," p. 27; Newman, "America Fights Back," p. 4

[8]Watson and Barry, "Our Target Was Terror," p. 28; Newman, "America Fights Back," p. 42.

[9] Tim Weiner and James Risen, "Decision to Strike Factory in Sudan Based on Surmise," *The New York Times*, September 21, 1998, p. A1.

[10]Watson and Barry, "Our Target Was Terror," p. 28; Newman, "America Fights Back," p. 42.

[11] Seymour M. Hersh, "Annals of National Security: The Missiles of August," *The New Yorker,* October 12, 1998, pp. 35-36.

[12] The Department of Defense declined to provide an authoritative account of the number of Tomahawks used in the attack on Shifa, and press reports range from six up to 20. See David A. Fulghum, "Secrec about Raids Hints More to Come," *Aviation Week & Space Technology* August 31, 1998, p. 30; Newman, "America Fights Back," p. 38; Watso and Barry, "Our Target Was Terror," pp. 24, 26; Barbara Starr, "More Questions than Answers," ABC News, August 26, 1998 (http://www.abcnews.com:80/).

[13]Newman, "America Fights Back," p. 38; Watson and Barry, "Our Target Was Terror," p. 24.

[14]Newman, "America Fights Back," p. 42; Watson and Barry, "Our Target Was Terror," pp. 24, 28; "Six Sites Hit in Afghanistan, Pharmaceutical Plant in Sudan," AFP, August 20, 1998.

[15] David Hirst, "The `Secret' Factory that No One Tried to Hide," *The Guardian* (London), August 23, 1998 (http://reports.guardian.co.uk/sp_reports/usbombs/424.html).

[16] Clinton, "Address to the Nation by the President."

[17] Transcript: Briefing by Albright and Berger on Terrorist Sites, United States Information Agency, August 20, 1998 (http://www.usia.gov/topical/pol/terror/98082009.htm).

[18] DOD News Briefing, Office of the Secretary of Defense, August 2 1998 (http://www.defenselink.mil/).

[19] *Ibid.*

[20] Background Briefing, U.S. Department of Defense, August 20, 1998 (http://www.defenselink.mil).

[21] Coordinator for Counterterrorism, U.S. Department of State, "Fact Sheet: U.S. Strike on Facilities in Afghanistan and Sudan," United States Information Agency, August 21, 1998 (http://www.usia.gov/topical/pol/terror/98082112.htm). The United States Information Agency maintains a web site providing extensive links to official U.S. statements regarding the attacks in Sudan and Afghanistan (http://www.usia.gov/topical/pol/terror/strikes.htm).

[22] Ed Vulliamy, Henry McDonald, Shyam Bhatia, and Martin Bright, "Clinton Knew Target Was Civilian," *The Guardian* (London), August 23, 1998 (http://reports.guardian.co.uk/).

[23]Anthony Shadid, "Questions Remain, But Some Sudanese Claims on Factory Prove True," Associated Press, August 24, 1998. Accordin to one report, the factory had three buildings producing human medicines, and one devoted to producing veterinary medicines. See David Hirst, Richard Norton-Taylor, and Gerard Seenan, "Sudan Calls for UN Inspection," *Electronic Mail & Guardian* (Johannesburg), Augus

25, 1998 (http://www.mg.co.za/).

[24]Shadid, "Questions Remain"; Hirst, Norton-Taylor, and Seenan, "Sudan Calls for UN Inspection"; Hirst, "The `Secret' Factory."

[25]Daniel Pearl, "More Doubts Rise Over Claims for U.S. Attack," *Wal Street Journal*, August 28, 1998, p. 8; Tim Weiner and Steven Lee Meyers, "Flaws In U.S. Account Raise Questions on Strike in Sudan," *The New York Times,* August 29, 1998, p. 1.

[26] "Bombed Sudanese Pharmaceutical Factory Founder: Idea for Factory Was Commercial," *Arabic News*, September 14, 1998 (http://www.arabicnews.com/).

[27]Pearl, "More Doubts Rise," p. 8; Hirst, Norton-Taylor, and Seenan, "Sudan Calls for UN Inspection"; "US Bombing Accelerates Health Crisis, Says Sudan," *Electronic Mail & Guardian* (Johannesburg), August 25, 1998 (http://www.mg.co.za/).

[28]Pearl, "More Doubts Rise," p. 8; Hirst, "The `Secret' Factory"; "UN Postpones Response to Sudan's Request over US Bombing," Africa News Service, August 25, 1998.

[29]Pearl, "More Doubts Rise," p. 8.

[30]Two press reports said Idris purchased Shifa plant for $27 million. See Beau Brendler, "U.S. Ties Plant to Bin Laden," ABC News, Augus 21, 1998 (http://www.abcnews.com:80/); Jane Perlez, "Iraqi Link with Sudan on Nerve Gas Reported," *The New York Times*, August 26, 1998, p. A8. Sudanese government officials claim the factory will cost $100 million to rebuild. See Nhial Bol, "Sudan: No Taxpayers Money, I Will Rebuild My Factory, Owner Says," IPS, August 28, 1998.

[31]Anthony Shahid, "Factory Owner's Lawyer Says No Links to Bin Laden, No Weapons," Associated Press, August 23, 1998; Shadid, "Questions Remain"; Daniel Pearl, "Owner of Sudan Factory Has No Known Ties to Extremists," *Wall Street Journal*, August 24, 1998; Pear "More Doubts Rise," p. 8.

[32]Shadid, "Questions Remain." This report cites an interview with Adam Umbadi, a production engineer at the factory.

[33]Hirst, Norton-Taylor, and Seenan, "Sudan Calls for UN Inspection" "U.S. Bombing Accelerates Health Crisis, says Sudan," *Electronic Mail & Guardian* (Johannesburg), August 25, 1998 (http://www.mg.co.za/); Shadid, "Questions Remain."

[34]Hirst, Norton-Taylor, and Seenan. "Sudan Calls for UN Inspection" "US Bombing Accelerates Health Crisis"; Shadid, "Factory Owner's Lawyer Says No Links." According to Sudanese doctors and health officials, the factory's destruction could lead to severe drug shortages endangering the lives of thousands of Sudanese. See "Sudan Says Attack Will Cause Drug Shortage," *Washington Post,* August 28, 1998,

p. 1; Ian Brodie, "America Reviews Sudan Chemical Evidence," *The Times* (London), August 29, 1998 (http://www.the-times.co.uk).

[35]"Engineers Deny Sudan Factory Could Have Produced VX Gas," AFP, August 22, 1998; "UK Engineer Says No Chemical Weapons at Sudan Plant," Reuters, August 23, 1998; Shadid, "Factory Owner's Lawyer Says No Links"; Shadid, "Questions Remain"; Anthony Shadid "Sudan Factory May Have Made Drugs," Associated Press, August 24 1998.

[36] Bob Arnot, "Sudan: Bad, Yes, But Is it Guilty Too?," MSNBC New September 2, 1998 (http://www.msnbc.com/news/190722.asp).

[37] Colum Lynch, "Allied Doubts Grow about the US Strike on Sudanese Plant," *Boston Globe*, September 24, 1998. The U.S. Department of State has acknowledged that the United States approved the sale in January 1998. See James Foley, "Transcript: State Department Briefing on Sudan/Pharmaceutical Factory," United States Information Agency, August 25, 1998 (http://www.usia.gov/topical/pol/terror/98082501.htm).

[38]Hirst, Norton-Taylor, and Seenan, "Sudan Calls for UN Inspection" Shadid, "Questions Remain."

[39] Hersh, "Annals of National Security," p. 35.

[40]Baron Gellman and Dana Priest, "U.S. Strikes Terrorist-Linked Sites in Afghanistan, Factory in Sudan," *Washington Post*, August 21, 1998; "Sudan Minister Denies Existence of Chemical Weapons Plant," AFP, August 21, 1998.

[41]"Khartoum to Complain to UN," *Electronic Mail & Guardian* (Johannesburg), August 21, 1998 (http://www.mg.co.za); Alfred Taban "Sudan Seeks Foreign Support after U.S. Raid," Reuters, August 21, 1998.

[42] Martin Evans, "UK Engineer Says Sudan Factory Not Equipped to Make Weapons," London Press Association, August 22, 1998; in FBIS FTS19980822000217 (22 August 1998).

[43] Joris Leyendijk, "Khartoum Exploits US `Aggression,'" *De Volkskrant* (Amsterdam), August 26, 1998, pp. 1, 5; in FBIS FTS19980826000735 (26 August 1998).

[44]Vulliamy, McDonald, Bhatia and Bright, "Clinton Knew Target Was Civilian."

[45] Hersh, "Annals of National Security," p. 35.

[46]Shadid, "Questions Remain"; "Sudan: US-Milit?rschlag doch gege falsches Ziel?," *Der Spiegel*, August 29, 1998 (http://www.spiegel.de/); "Italian Envoy: US Air Strike in Sudan `Surgical,'" ANSA (Rome), August 21, 1998; in FBIS FTS19980821001296 (21 August 1998).

[47]Pearl, "More Doubts Rise," p. 8.

[48] *Ibid.*

[49] Steven Lee Myers and Tim Weiner, "Possible Benign Use Is Seen for Chemical at Factory in Sudan," *The New York Times*, August 27, 1998, p. 1.

[50]Vulliamy, McDonald, Bhatia and Bright, "Clinton Knew Target Was Civilian." Seth Carus disputes Carnaffin's claim on this point, saying airlocks are not necessary at a CW-production facility (interview with author, October 22, 1998).

[51] Terry Atlas and Ray Moseley, "'Smoking Gun' for Sudan Raid No in Doubt," *Chicago Tribune*, August 28, 1998 (http://chicagotribune.com).

[52]"Engineers Deny Sudan Factory Could Have Produced VX Gas," AFP, August 22, 1998.

[53] "Bombed Sudanese Pharmaceutical Factory Founder."

[54]Mark Hubbard and Clive Cookson, "Diplomats Query US Allegations on Sudan," *Financial Times* (London), August 29, 1998.

[55]"Destroyed Sudanese Factory Produces Only Drugs: German Ambassador," Xinhua, August 30, 1998; "Missiles Against Wrong Target?," *Welt Am Sonntag* (Hamburg), August 30, 1998, p. 2; in FBIS FTS19980831000995 (31 August 1998). The German Foreign Ministry classified the report as secret, but the German press published portion of its text.

[56]Mark Hubbard, "Military Strikes: Doubts Raised on US Target Claims," *Financial Times*, August 26, 1998.

[57] "Sudanese Opposition Claim Plant Produced Chemical Weapons, *Al-Hayah* (London), August 26, 1998, p. 6; in FBIS FTS19980827000590 (27 August 1998); "Al-Mahdi: Al-Shifa Strike Helped Regime," *Al-Sharq al-Awsat* (London), September 4, 1998, p. in FBIS FTS19980905000486 (5 September 1998).

[58] "Soil Sample Key to U.S. Missile Strike in Sudan," *Chemical and Engineering News*, August 31, 1998, p. 7.

[59]John Diamond, "U.S. Intelligence Cites Iraqi Tie to Sudan Plant," Associated Press, August 25, 1998, in *Boston Globe* (http://www.boston.com); Weiner and Myers, "Flaws in U.S. Account Raise Questions," p. 8; Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1.

[60] Diamond, "U.S. Intelligence Cites Iraqi"; Paul Richter, "Sudan Attack Claims Faulty, U.S. Admits," *Los Angeles Times*, September 1,

1998; Tim Weiner and Steven Lee Myers, "U.S. Defends Attack on Sudanese Drug Plant," *The New York Times*, September 3, 1998; Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1.

[61]Brodie, "America Reviews Sudan Chemical Evidence"; Myers and Weiner, "Possible Benign Use Is Seen," p. 1; Weiner and Myers, "Flaws in U.S. Account Raise Questions," p. 1.

Secretary of Defense Cohen acknowledged that the United States did not learn until at least three days after bombing Shifa that it produced medicines. Cohen also acknowledged that the financial connection between Shifa and bin Laden was at most "indirect," contradicting his August 20 assertion that bin Laden "had contributed to this particular facility." Nevertheless, Cohen insisted that this inaccurate information was irrelevant to President Clinton's decision to destroy Shifa, which h said was based on information that the plant might be linked to bin Laden and that Shifa produced a VX precursor. See Weiner and Myer "U.S. Defends Attack."

[62] Berger summarized the available knowledge thus: number one, "that Usama bin Ladin seeks to obtain chemical weapons; number two that he seeks to use those chemical weapons in terrorist activity; number three, that he seeks to direct that terrorist activity against the United States; number four, that he has cooperated with the government of Sudan on their chemical weapons program; number fiv that the precursor for VX gas was present--had been present at that facility and; number six, that bin Ladin was a substantial financial sponsor and contributor to the Military Industrial Corporation, of which that plant was a part" (Press Briefing by National Security Advisor Sandy Berger, The White House, Office of the Press Secretary, September 21, 1998 [http://www.pub.whitehouse.gov/]).

[63] Jane Perlez, "Iraqi Link with Sudan," p. A8.

[64] Steven Lee Myers, "U.S. Says Iraq Aided Production of Chemical Weapons in Sudan," *The New York Times*, August 25, 1998, p. 1; Karl Vick, "U.S., Sudan Trade Claims on Factory," *Washington Post*, Augus 25, 1998, p. 1.

[65] Vernon Loeb and Bradley Graham, "Sudan Plant Was Probed Months before Attack," *International Herald Tribune,* September 1, 1998.

[66] Transcript: Pickering on US Sudan, Afghanistan Strikes, United States Information Agency, August 26, 1998 (http://www.usia.gov/topical/pol/terror/98082701.htm).

[67]"White House Says No Sign Iraq Exported Arms," Reuters, February 17, 1998.

[68]Yossef Bodansky, "The Iraqi WMD Challenge: Myths and Reality," (Washington, D.C.: U.S. House of Representatives Task Force on Terrorism and Unconventional Warfare, February 10, 1998). On the

credibility of the Bodansky report, see note no. 154 below.

[69] Press Briefing by National Security Advisor Sandy Berger, The White House, Office of the Press Secretary, September 18, 1998 (http://www.pub.whitehouse.gov/). On Berger's rationale for the attack, see note no. 62 above.

[70] The author is indebted to Seth Carus for this observation.

[71] Jacquelyn S. Porth, "U.S. Has Chemical Weapons-Related Soil Sample from Sudan Plant," United States Information Agency, undate (http://www.usia.gov/topical/pol/terror/98082502.htm).

[72] Tim Weiner, "Pentagon and C.I.A. Defend Sudan Missile Attack," *The New York Times*, September 2, 1998, p. A5.

[73] Following a terrorist bombing in Berlin, U.S. officials released a decoded message intercepted en route to Tripoli from the Libyan mission in East Germany, which described how the bombing had been conducted. See Milt Bearden, "Explaining Our Actions in the Sudan," *The New York Times*, August 26, 1998.

[74] Hersh, "Annals of National Security," p. 39.

[75] *Ibid,* p. 35.

[76] *United States of America v. Mamdouh Mahmud Salim*, Sealed Complaint, United States District Court, Southern District of New York, September 14, 1998, p. 2-5. The author is indebted to Seth Carus for providing the text of this criminal complaint.

[77] "U.S. Claims More Evidence Linking Sudanese Plant to Chemical Weapons," CNN Interactive, September 1, 1998 (http://www.cnn.com/WORLD/africa/9809/01/sudan.plant).

[78] Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1.

[79] "U.S. Claims More Evidence Linking Sudanese."

[80] James Risen, "New Evidence Ties Sudanese to Bin Laden, U.S. Asserts," *The New York Times*, October 4, 1998; Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1.

[81] Weiner, "Pentagon and C.I.A. Defend Sudan Missile Attack," p. A

[82] "Administration Officials Detail Missile Strike Strategy," AP, September 2, 1998.

[83] Pearl, "Sudan Plant's Apparent Owner Has No Known Extremist Ties," *Wall Street Journal*, August 24, 1998, p. A9; Hans Dahne, "Owner of Sudanese Factory Comes Under Scrutiny in Wake of US Strikes," Deutsche Presse-Agentur, September 22, 1998; Risen, "New Evidence Ties Sudanese to Bin Laden."

[84] Tim Weiner, "Pentagon and C.I.A. Defend Sudan Missile Attack," p. A5; Hans Dahne, "Owner of Sudanese Factory Comes Under Scrutiny in Wake of US Strikes," Deutsche Presse-Agentur, Septembe 22, 1998.

[85] Jane Perlez, "Iraqi Link with Sudan," p. A8.

[86] Hans Dahne, "Owner of Sudanese Factory Comes Under Scrutiny in Wake of US Strikes," Deutsche Presse-Agentur, September 22, 1998.

[87]Hubbard, "Military Strikes: Doubts Raised on US Target Claims."

[88] Pearl, "Owner of Sudan Factory"; Risen, "New Evidence Ties Sudanese to Bin Laden."

[89]Pearl, "Sudan Plant's Apparent Owner," p. A9; "The Rebels Meet i Asmara," *Indian Ocean Newsletter,* October 10, 1998; David Hirst, "Factory Rubble Yields No Sign of Arms," *The Guardian* (London), August 24, 1998.

[90] Hans Dahne, "Owner of Sudanese Factory Comes Under Scrutiny in Wake of US Strikes," Deutsche Presse-Agentur, September 22, 1998; "Khartoum Factory Owner Denies Rebuilding Deal with U.S.," Deutsche Press-Agentur, September 10, 1998; "Owner Vows to Rebuild Bombed Sudan Factory," Reuters, August 26, 1998; Bol, "Sudan: No Taxpayers Money."

[91] Starr, "More Questions than Answers."

[92] Watson and Barry, "Our Target Was Terror," p. 28.

[93] Loeb and Graham, "Sudan Plant Was Probed Months before Attack," p. 2.

[94]ABC News also reported that these "sources say the Administratio wanted a target in addition to bin Laden's camps in Afghanistan to show the US was moving on what they called bin Laden's worldwide network of operations." See "More Questions Raised about Sudan Strike," ABC News Broadcast of September 1, 1998; in Bulletin Broadfaxing Network, September 2, 1998.

[95] "Sudan Target Pulled," *U.S. News & World Report*, September 21, 1998, p. 7. See also "Most JCS Members Not Consulted."

Unidentified military officials said they had evidence of another "chemical and bacteriological factory" located in a residential area of Khartoum's Kubar suburb. However, they decided to target al-Shifa instead because its location in an industrial area reduced the risk of civilian casualties (Diamond, "U.S. Intelligence Cites Iraqi"). In plannin the attack, U.S. officials said they believed that due to wind and climat factors at the site, there would be little risk of creating a harmful

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chemical cloud in the area. They said they allocated additional cruise missiles to ensure that any toxic chemicals were incinerated (Watson and Barry, "Our Target Was Terror," p. 28; Newman, "America Fights Back," p. 42). Both Secretary Cohen and General Shelton said that efforts were made to reduce civilian casualties, so-called "collateral damage." Cohen said that "a detailed analysis was made and we're satisfied that there was a low risk of collateral damage" (DOD News Briefing, Office of the Secretary of Defense, August 20, 1998, [http://www.defenselink.mil/]).

It is not clear, however, how such calculations could be made with any confidence. Since U.S. officials were of the mistaken view that the pla had no legitimate pharmaceutical production, they would presumably have estimated that the entire plant could have been dedicated to CW precursor and/or agent production. Without knowledge of whether VX itself had been produced, or only its precursors, and given uncertainty about the quantity of precursors and/or VX in the plant, it would be exceedingly difficult to predict the potential impact of the attack on the surrounding community.

[96] "Cohen Defends Bin Laden Raid Plans," MSNBC News, October 1998 (http://www.msnbc.com:80/news/202142.asp).

[97] Hersh, "Annals of National Security," p. 36.

[98]Jane Perlez, "Iraqi Link With Sudan," p. A8.

[99]Vick, "U.S., Sudan Trade Claims on Factory," p. 1; Robert S. Greenberger and Nikhil Deogun, "Officials Say Soil Sample Buttresse U.S. Suspicions about Sudan Plant," *Wall Street Journal,* August 25, 1998, p. 16.

[100] Transcript: Pickering on US Sudan, Afghanistan Strikes; Atlas and Moseley, "`Smoking Gun' for Sudan."

[101] Tim Weiner and Steven Lee Myers, "U.S. Notes Gaps in Data about Drug Plant But Defends Attack; Sudan Envoy Angry," *The New York Times*, September 3, 1998. Former Shifa export manager Alamaddin al-Shibli denied that the soil sample could have been taken from Shifa, saying "the factory was tiled throughout, and there was asphalt everywhere outside the buildings. Where could anyone have taken a sample?" See Dahne, "Owner of Sudanese Factory Comes Under Scrutiny."

[102] "Administration Officials Detail Missile Strike Strategy." It is unclear whether the threshold of a "trace" level was defined in the analysis in absolute terms or above background.

[103]"U.S. Intelligence Defends VX-Sudan Link," Reuters, August 25, 1998. An unidentified U.S. State Department official later said, "Iraq admitted to UNSCOM that it planned to produce VX for its CW progra using the EMPTA process. And prior to the Sudanese soil sample, Ira was the only country we know of to have pursued this production

process" (see "U.S. Claims More Evidence Linking Sudanese Plant"). On the chemistry of VX, See Mitretek Systems, "Chemistry of VX" (http://www.mitretek.org/offer/energy/cw_page/vx.html#d1).

[104]"U.S. Intelligence Defends VX-Sudan Link." The United States di not use EMPTA in producing its stockpile of VX nerve agents. See "So Sample Key to U.S. Missile Strike in Sudan," *Chemical and Engineering News*, August 31, 1998, p. 6. On U.S. production and disposal of VX nerve gas, see Program Manager for Chemical Demilitarization, U.S. Army (http://www-pmcd.apgea.army.mil/).

[105] Mitretek Systems, "Chemistry of VX"; U.S. Army Chemical Biological Defense Command, "Material Safety Data Sheet: Lethal Nerve Agent (VX)," February 28, 1996, (http://www.apgea.army.mil/RDA/erdec/risk/safety/msds/vx1.html); "Soi Sample Key to U.S. Missile Strike in Sudan," p. 7; *The Convention on the Prohibition of Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction*, Organization for the Prohibition of Chemical Weapons, August 8, 1994, pp. 43-45, 110 (pdf file version online at http://www.opcw.nl/cwc/cwc-eng.pdf).

[106] Atlas and Moseley, "Smoking Gun' for Sudan."

[107]Myers and Weiner, "Possible Benign Use Is Seen," p. 1.

[108] "Soil Sample Key to U.S. Missile Strike in Sudan," p. 7.

[109] "U.S. Claims More Evidence Linking Sudanese Plant."

[110]Pearl, "More Doubts Rise," p. 8.

[111]Jonathan Tucker, personal communications with the author, August 31, 1998, and September 8 and 14, 1998.

[112] Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1; "Dubious Decisions on the Sudan," *The New York Times*, September 23, 1998, p. A30.

[113] Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1.

[114] *Ibid.*

[115] "Administration Officials Detail Missile Strike Strategy."

[116] Hersh, "Annals of National Security," p. 40.

[117] "U.S. Claims More Evidence Linking Sudanese Plant."

[118] "Soil Sample Key to U.S. Missile Strike in Sudan," p. 6.

[119] It is unclear whether the senior U.S. officials who planned Operation Infinite Reach understood these issues. James Woolsey, President Clinton's former CIA director, expressed doubt. He said, "this

should not be the kind of decision made only with three or four people around you of Cabinet-level who don't know an EMPTA sample from their left foot." See Ian Brodie, "America Insists Factory Was Gas Producer," *The Times* (London) (http://www.sunday-times.co.uk/cgi-bin/BackIssue?1074973). A critic of the U.S. attack said, "no scientist would consider a single sample analyzed at one laboratory, without an peer review, as a basis to publish, let alone bomb. The team that decided to bomb contained no scientist. How hard could it have been t find one?" See Deborah MacKenzie, "Questions First, Bombs Later," *New Scientist*, September 19, 1998, p. 51.

[120]Peter Capella and Andrew Marshall, "US Strives to Justify Air Strike on Sudan Attack on Factory," *Independent* (Johannesburg), August 26, 1998. EMPTA can be used to produce VX, but it can also b a product of the degradation of VX (Yu-Chu Yang, Linda L. Szafraniec William T. Beaudry, and Dennis K. Rohrbaugh, "Oxidative Detoxification of Posphothiolates," *Journal of the American Chemical Society* 112 [1990], pp. 6621-27).

[121] Pearl, "More Doubts Rise," p. 8.

[122] See Schedule 2B, p. 44, of *The Convention on the Prohibition of Development, Production, Stockpiling and Use of Chemical Weapons and their Destruction.*

[123] Pearl, "More Doubts Rise," p. 8.

[124]Rachel Wolff, "U.S. Government Facing Growing Questions on Sudan Missile Attack," *Asahi Shimbun* (Tokyo), September 1, 1998.

[125] "Soil Sample Key to U.S. Missile Strike in Sudan," p. 6.

[126]Myers, "U.S. Says Iraq Aided Production," p. 1.

[127] "U.S. Claims More Evidence Linking Sudanese Plant." An unidentified U.S. intelligence official said that samples were taken fro five other sites in the Sudan but only that collected at Shifa tested positive for EMPTA. See Paul Richter, "Sudan Attack Claims Faulty, U.S. Admits," *Los Angeles Times*, September 1, 1998.

[128] William J. Clinton, "Radio Address of the President to the Nation August 22, 1998 (http://www.usia.gov/topical/pol/terror/98082201.htm) Cohen and Shelton, "DOD News Briefing"; Transcript: Briefing by Albright and Berger on Terrorist Sites; Transcript: Albright on NBC-TV `Today' Show, United States Information Agency, August 21, 1998 (http://www.usia.gov/topical/pol/terror/98082101.htm); Bill Richardson "Text: Ambassador Richardson Letter to UNSC," United States Information Agency, August 20, 1998 (http://www.usia.gov/topical/pol/terror/98082008.htm); Thomas Pickering, "Transcript: State Department Noon Briefing, August 21, 1998," United States Information Agency, August 21, 1998 (http://www.usia.gov/topical/pol/terror/98082110.htm); Martin Indyk, "Transcript: Indyk Briefing for Middle East Press," United States

Information Agency, August 21, 1998 (http://www.usia.gov/topical/pol/terror/98082115.htm) ; James Foley, "Transcript: State Department Briefing on Sudan/Pharmaceutical Factory," United States Information Agency, August 25, 1998 (http://www.usia.gov/topical/pol/terror/98082501.htm).

[129] "Pentagon Stands by Accusations Against Sudan Factory," AFP, September 8, 1998.

[130] "U.S. Officials: Strong But Not Conclusive Evidence on Sudan Plant," Deutsche Presse-Agentur, September 4, 1998. A *Newsweek* report of September 28 provided an account that differed from that of U.S. intelligence officials, saying the sample was not taken from the soil, but rather from a discharge pipe from the plant. See "Making a Case," *Newsweek*, September 28, 1998, p. 6.

[131] Porth, "U.S. Has Chemical Weapons-Related Soil Sample."

[132] *The New Yorker* reported that EMPTA is "highly reactive" and would therefore break down quickly if deposited in soil (Hersh, "Annals of National Security," p. 40). However, the research literature does not appear to support this assertion. The rate of EMPTA degeneration depends on a number of environmental factors, including the time period since release, ambient temperature and humidity, and pH level and other aspects of soil chemistry. But in general, EMPTA and other VX hydrolysis products are of low volatility and hence unlikely to degenerate rapidly (Kathleen Vogel, interview with the author, October 15, 1998; Yu-Chu Yang, Linda L. Szafraniec, William T. Beaudry, and Clifford A. Bunton, "Perhydrolysis of Nerve Agent VX," *Journal of Organic Chemistry* 58 (1993), 6964-65).

[133] Loeb and Graham, "Sudan Plant was Probed Months before Attack."

[134] Rachel Wolff, "U.S. Government Facing Growing Questions."

[135] Jane Perlez, "Iraqi Link with Sudan," p. A8.

[136] Kathleen Vogel, interview with the author, October 15, 1998.

[137] Mitretek Systems, "Chemistry of VX" (http://www.mitretek.org/offer/energy/cw_page/vx.html).

[138] Richard Norton-Taylor, "Show Evidence for Sudan Raid, MP Demands," *The Guardian* (London), August 25, 1998 (http://reports.guardian.co.uk).

[139] Atlas and Moseley, "'Smoking Gun' for Sudan."

[140] The author is indebted to Kathleen Vogel for this example. See Robin M. Black and Graham S. Pearson, "Unequivocal Evidence," *Chemistry in Britain* (July 1993), pp. 584-87; Robin M. Black, Raymon J. Clarke, Robert W. Read, and Michael T.J. Reid, "Application of Gas

Chromatography_Mass Spectrometry and Gas Chromatography_Tandem Mass Spectrometry to the Analysis of Chemical Warfare Samples, Found to Contain Residues of the Nerve Agent Sarin, Suphur Mustard and their Degradation Products," *Journal of Chromatography* 662 (1994), pp. 301-321.

[141] If EMPTA production or storage had been confined to a small area within Shifa, and if that area had been buried immediately by the cruise missile explosions, rubble containing its chemical traces might be limited to a correspondingly small area in the ruins of the plant. Hence thorough inspection would require sampling from locations throughout the wreckage. (Jonathan Tucker, personal interview with th author, October 14, 1998).

[142] *Sudan and Terrorism,* Hearing before the Subcommittee on African Affairs of the Committee on Foreign Relations of the United States Senate, 105th Congress, First Session, May 15, 1997, pp. 63-6 (http://frwebgate.access.gpo.gov).

[143]There were prior allegations of CW use in the Sudan, but these charges were made against Sudanese rebels. In 1986, the Sudanese government and an official of Ethiopia's Democratic Peoples Alliance alleged that the rebel Sudanese People's Liberation Army (SPLA) use chemical weapons in attacks on Sudanese villagers and government military personnel. See Gordon M. Burck and Charles C. Flowerree, *International Handbook on Chemical Weapons Proliferation (*New York Greenwood Press, 1991), pp. 471-472.

[144]Barry Shelby, "Sudan's Weapons," *World Press Review,* Februar 1989, p. 41; Deborah Pugh, "Sudan May Have Chemical Weapons," *The Guardian* (London), August 13, 1990, p. 2; INA (Baghdad), December 25, 1988; in FBIS-NES-88-248 (27 December 1988); Radio SPLA, April 18, 1991; in BBC Summary of World Broadcasts, April 18, 1991; INA (Baghdad), August 25, 1990; in FBIS-NES-90-166 (27 August 1990).

[145]United States Department of State, "Recent Chemical Weapons (CW) Use Allegations - Africa," United States Department of State Information Memorandum, March 9, 1992, pp. 1-2, Secret/NOFORN, declassified January 1, 1998 (available online at http://cns.miis.edu/research/wmdme/00002167.pdf).

[146]"London Conference Resolutions," *Sudan News and Views* 16 (December 1995); "Opposition Radio Says State Planning to Construc Chemical Weapons Factory," BBC Summary of World Broadcasts, Apr 12, 1996; "Sudanese Alliance Forces Leader Interviewed," *Al-Majallah* (London), January 5-11, 1997; in FBIS FTS19970317001393 (17 March 1997); "Opposition Says Iran Supplies Heavy, Chemical Weapons," Radio France International, January 27, 1997; in FBIS FTS19970127001355 (27 January 1997); "Opposition Says Iran Givin Government Chemical Weapons," Voice of Sudan, January 30, 1997; in FBIS-TAC-98-208 (27 July 1998); "Opposition Radio Says Government Receiving Arms from Iran," BBC Worldwide Monitoring,

January 30, 1997; "SPLA Leader says Iran Supplies Government with Chemical Weapons," MENA, February 2, 1997; in BBC Summary of World Broadcasts, February 2, 1997; "Opposition Says Iran Sent Tanks, CW to Khartoum," MENA, January 26, 1997; in FBIS FTS19970422001385 (25 March 1998); "Chemical Weapons Factory Reportedly Built Near Khartoum," MENA, July 16, 1997; in BBC Summary of World Broadcasts, July 16, 1997; "Uganda Paper Says Sudan Sends 60,000 Troops to Defend Juba," *Sunday Vision* (Kampala), September 21, 1997, p. 2; "Garang Says War in South `Over'; Eastern Front `Next Target," *Al-Bayan* (Dubai), June 28, 1997; in BBC Summary of World Broadcasts, June 28, 1997; Jihad Salim, *Al Watan Al-'Arabi* (Paris), October 31, 1997; in FBIS FTS19971118000479 (18 November 1997); Emmy Allio, "Sudan Has Poison Gas Plant Near Uganda," Africa News Online, November 21, 1997 (http://www.africanews.org); "Manufacture of Non-Conventional Weapons in Khartoum," *Vigilance Soudan,* English edition, 1st Quarte 1998 (http://perso.club-internet.fr/vigilsd/articles/ba2/ab-2-g.htm; Human Rights Watch, *Global Trade, Local Impact: Arms Transfers to All Sides in the Civil War in Sudan* (August 1998) (http://www.hrw.org/hrw/reports98/sudan/).

[147]Office of Technology Assessment, *Proliferation of Weapons of Mass Destruction: Assessing the Risks* (Washington, D.C.: U.S. Government Printing Office, August 1993), p. 15; Efraim Karsh, Martin S. Navias, and Philip Sabin, eds., *Non-Conventional Weapons Proliferation in the Middle East* (Oxford: Clarendon Press, 1993), p. 92 "CWC Status: States of Chemical Weapons Proliferation Concern," Stimson Center, July 23, 1998 (http://www.stimson.org/cwc/status.htm) John Pike, "States Possessing Weapons of Mass Destruction," (Federation of American Scientists, November 16, 1997) (http://www.fas.org/irp/threat/wmd_state.htm).

[148]Office of the Secretary of Defense, *Proliferation: Threat and Response* (Washington, D.C.: U.S. Department of Defense, October 1997), pp. 23-40.

[149] *Report of Proliferation-Related Acquisitions in 1997*, Central Intelligence Agency (http://www.odci.gov/cia/publications/acq1997.html).

[150]Phyllis E. Oakley "Assessing Current and Projected Threats to U.S. National Security," Testimony before the U.S. Senate Select Committee on Intelligence, Washington, D.C., January 28, 1998 (http://www.state.gov).

[151]Bodansky, "The Iraqi WMD Challenge: Myths and Reality"; Jim Wolf, "Iraq Hid Deadly Weapons Abroad-Congress Report," Reuters, February 15, 1998.

[152]"White House Says No Sign Iraq Exported Arms," Reuters, February 17, 1998.

[153]"Authorities Claim US `Disinformation Attempt' Over Iraq;"

Sueddeutsche Zeitung (Munich), March 26, 1998; in FBIS-WEU-98-085, 26 March 1998; Norton-Taylor, "Show Evidence for Sudan Raid, MP Demands"; Donna Casata, "Author of House Report on Iraqi Arms Finds His Credibility Under Siege," *Congressional Quarterly Weekly Report,* February 28, 1998, pp. 502-503.

[154]The Bodansky report alleges that during 1991-92, "approximately 27.5 pounds of 93% U-235 which had been originally supplied to Iraq by France for use in the French-built Osirak research reactor" was shipped to Algeria via Sudan for storage at the "Algerian reactor at Ain Oussera." Algeria rejected the charges as a "fantasy." See "Ambassador Denies Report Iraqi Uranium Is Stockpiled In Algeria," AFP, February 15, 1998; in Dialog, February 15, 1998 (http://dialog.carl.org). The available evidence corroborates the Algerian response. The Ain Oussera facility is under IAEA safeguards, and the fissile material referred to in the task force report was physically airlifted from Iraq between November 15 and 17, 1991, by the IAEA with the assistance of UNSCOM. It was transformed in Russi through isotopic dilution for resale as 20 percent-enriched reactor fuel. See "IAEA Inspections and Iraq's Nuclear Capabilities," IAEA, April 1992 (http://www.iaea.or.at/worldatom/inforesource/other/iraq/iraqindex.html "Fifth report of the Executive Chairman of the Special Commission...," UNSCOM, May 21, 1993 (http://www.un.org/Depts/unscom/s25977.htm); "UNSCOM Activities," *SIPRI Yearbook 1994* (Oxford and New York: Oxford University Press/Stockholm International Peace Research Institute, 1994), pp. 755-56.

The Bodansky report also alleged that Iraq transferred specialists and materials from its WMD programs to Libya in the 1990s. It asserts in particular that Iraq sent a "limited quantity of semi-enriched nuclear fuel" by ship to Libya, and that by the end of 1995, Iraqi specialists "began enriching the Iraqi nuclear material having successfully installed the small and medium-sized kilns/furnaces there" in Libya. This alleged activity is not physically possible. Although there are several technical processes by which uranium can be enriched, none these involve "kilns/furnaces." See Office of Technology Assessment, "Appendix 4-B: Enrichment Technologies," in *Technologies Underlying Weapons of Mass Destruction* (Washington, D.C.: U.S. Government Printing Office, December 1993), pp. 176-80.

The Bodansky report also claims that in mid-1991, "about 400" Scud missiles were transferred from Iraq to Yemen and the Sudan. The clai that Iraq retained hundreds of ballistic missiles after the Gulf War is wildly at variance with estimates by authoritative sources, which estimate that Iraq may retain from between two up to a maximum of a few dozen Scud missiles. See U.S. National Security Council, "Iraq's Program of Mass Destruction: Threatening the Security of the International Community," November 14, 1997, p. 4 (http://www.usia.gov/regional/nea/gulfsec/nsc1119.htm); U.S. Government White Paper, "Iraq Weapons Of Mass Destruction Programs," February 13, 1998

(http://www.usia.gov/regional/nea/iraq/whitepap.htm); Anthony H. Cordesman, "Weapons of Mass Destruction in the Middle East: National Efforts, War Fighting Capabilities, Weapons Lethality, Terrorism, and Arms Control Implications" (Washington, D.C.: Center for Strategic and International Studies, February 1998), p. 31; Michael Eisenstadt, "Iraq's Weapons of Mass Destruction (WMD): Unresolved Issues," *Policywatch* #304, February 27, 1998 (http://www.washingtoninstitute.org).

[155] Seth Carus, personal interview with the author, October 22, 1998.

[156] Jihad Salim, *Al-Watan Al-'Arabi* (Paris), October 31, 1997; in FBIS FTS19971118000479 (18 November 1997).

[157] There is thus no basis in the open-source literature to support the statement: "The Sudanese government assuredly knew about the Bin-Laden-financed pharmaceutical plant in Khartoum and may have been involved with the plant; the Sudanese opposition has been telling the world about it for some time" (Patrick Clawson, Michael Eisenstadt, Alan Makovsky, and David Schenker, "What do the Sudan/Afghanistan Strikes Harbinger?" *PolicyWatch* Number 337, August 21, 1998 [http://www.washingtoninstitute.org/watch/Policywatch/policywatch1998/337.htm]).

[158] Kenneth Roth, "Letter to Clinton Urges Sudan Factory Inspection," Human Rights Watch, September 15, 1998 (http://www.hrw.org/hrw/sept/sudan915.htm); "Sudanese Opposition Leader on US Strike," MENA (Cairo), August 26, 1998; in FBIS FTS19980826001124 (26 August 1998); "Al-Mahdi: Al-Shifa Strike Helped Regime," p. 4.

[159] Salim, "Report on Bin-Ladin, Zawahiri, `Afghans."

[160] Diamond, "U.S. Intelligence Cites Iraqi."

[161] "Chemical Weapons Factory Reportedly Built Near Khartoum," MENA (Cairo), July 16, 1997; in BBC Summary of World Broadcasts, July 16, 1997.

[162] *Al-Diyar* (Beirut), January 14, 1998, p. 14; in FBIS FTS19980115001140 (15 January 1998).

[163] Roth, "Letter to Clinton Urges Sudan Factory Inspection"; "Chemical Weapon Factory Damaged in 18 July Explosion," Voice of Sudan, July 26, 1998; in FBIS-TAV-98-208 (27 July 1998).

[164] Jane Perlez, "Iraqi Link with Sudan," p. A8.

[165] "Uganda Paper Says Sudan Sends 60,000 Troops to Defend Juba," *Sunday Vision* (Kampala), September 21, 1997, p. 2.

[166] Allio, "Sudan Has Poison Gas Plant near Uganda." The same sources apparently provided the basis for a second, simultaneous account: Jon Swain, *Sunday Times* (London), "British Daily-Iraq Manufacturing Mustard Gas in Sudan," November 16, 1997, p. 25; in FBIS FTS19971116000141 (16 November 1998).

[167] *U.S.C. Title 22 - Foreign Relations and Intercourse, Chapter 65 - Control and Elimination of Chemical and Biological Weapons*, January 6, 1997 (http://www.law.cornell.edu/uscode/22/ch65.html); text also available from The U.S. House of Representatives Internet Law Library (http://law.house.gov/usc.htm#search).

[168] See United Nations Security Council 1996 resolutions numbers 1044, 1054, and 1070 on the Sudan, text available online (http://www.un.org/Docs/sc.htm).

[169]Jerome Hull, "UN Postpones Response to Sudan's Request Over US Bombing," Pan Africa News Agency, August 25, 1998.

[170]"Sudan Urges NAM Support for UN Fact-Finding Mission," AFP, August 31, 1998. Sudanese President Omar al-Bashir later invited former U.S. President Jimmy Carter to tour the remains of the Shifa facility. See "Sudan Invites Former US President Carter to Investigate Bombing," AFP, September 22, 1998.

[171]"Sudan Dismisses US Factory-Attack Explanations, AFP, August 25, 1998; "Arabs Give Strong Backing to Sudan in Standoff with US," AP, August 24, 1998; "League of Arab States Supporting Sudan," Xinhua, August 23, 1998; "Arab League Wants UN Probe of Strike in Sudan," Reuters, August 24, 1998; "OAU Backs Fact-Finding Mission to Sudan," AFP, August 28, 1998; "IGAD Backs Sudan Request for UN Inquiry into US Bombing," AFP, September 5, 1998; Nicole Winfield, "Arabs Demand US-Sudan Bomb Probe," AP, September 18, 1998; "OAU Demands UN Inquiry into US Bombing in Sudan," AFP, September 21, 1998.

[172]"No UN Security Council Decision on Sudan Fact-Finding Mission," AFP, August 24, 1998.

[173] *Ibid.*

[174] "No International Probe Needed for Sudan Bombing: Richardson," AFP, August 30, 1998.

[175] "Draft UN Resolution Calls for Sudan Fact-Finding Mission," AFP, September 28, 1998.

[176] Press Briefing by National Security Advisor Sandy Berger.

[177] Transcript: Pickering on US Sudan, Afghanistan Strikes.

[178] "Draft UN Resolution Calls for Sudan Probe."

[179] *Ibid.*

[180] Winfield, "Arabs Demand US-Sudan Bomb Probe."

[181] "Security Council Discusses Resolution on Sudan Bombing," AP, September 29, 1998.

[182] Colum Lynch, "Khartoum Called Willing to Drop Effort for UN Probe into US Bombing of Plant, " *Boston Globe*, October 7, 1998.

[183] "News Conference with Mahdi Ibrahim Mahammad."

[184] Coordinator for Counterterrorism, Department of State, "Fact Sheet: U.S. Strike on Facilities in Afghanistan and Sudan."

[185] "Soil Samples Prove Sudan Plant Made Component of VX: US Official," AFP, August 25, 1998.

[186] Weiner and Risen, "Decision to Strike Factory in Sudan," p. A1.

[187] Roth, "Letter to Clinton Urges Sudan Factory Inspection"; "Sudanese Opposition Leader on US Strike."

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